

Dive Community Covid-19 Procedures

April 2020

Dive Shop/ Retail Space Recommendations:

To minimize contact, the following options will be in place:

- Pay by phone and curbside tank/ gear drop-off and pick-up will be available.
- In-store shopping will be limited by shop size and configuration and in keeping with social distancing guidelines.
- Hand washing or sanitizing station will be available at the store entrance.
- Register counter will have a barrier in place, like those already being used at supermarkets and gas stations.
- Employees will have masks and gloves.
- Customers will be required to wear masks before entering the premises and sanitize hands prior to entry.
- Covid-19 Signage will be posted at the single entrance, like those already being used at supermarkets and gas stations
- Signs posted in restroom area to include handwashing procedures

Boat Dive Protocol:

- Boats will limit occupancy based on social distancing guidelines in this outdoor environment.
- All customers and boat staff must have a cloth face covering that is suitable for a wet environment during transportation.
- Boats will be sprayed down and cleaned before/after each voyage with approved CDC cleaners.
- Approved disinfectants onboard and available for customer/crew use

Rental Department Procedures:

Customers:

- Phone orders/ pre-paid rentals for curbside pick-up are highly recommended
- Rental pick-up area will have limited occupancy in keeping with social distancing protocols.
- Masks must be worn and hands cleaned prior to entering the rental area
- Purchase of personal mouthpieces are recommended for use on all rental gear. If purchased, the personal mouthpiece will be installed on the rental regulator at time of rental and will be removed and returned to the customer at time of gear

check-in. Customers not wishing to purchase their own mouthpiece will be given a standard sterilized rental gear mouthpiece.

- When returning used gear customers will rinse gear in cleaning solution, prior to turning it over to the staff to sanitize.

Employee procedures

- All Staff must wear protective masks at all times and wash hands regularly.
- All gear rented will come from the sanitized section of the rental department.

Cleaning/ Sanitizing Procedures

- The outside of all scuba cylinders will be washed with an EPA's "List N"ⁱ approved disinfecting agent and in accordance to the Divers Alert Network (DAN)ⁱⁱ guidelines prior to renting. The air inside the cylinder is heated due to the compressing and filling process to a temperature greater than the SARS-CoV-2 can survive, therefore it is highly unlikely that COVID-19 can survive inside a scuba cylinder. (See attached reference)

- All gear will be cleaned on a soap and water solution prior to sanitizing as per the CDC guidelinesⁱⁱⁱ. Once cleaned the gear will be moved to the sanitizing process in accordance to the Divers Alert Network (DAN) guidelines^{iv}.

- BCD and Regulators- after initial washing all regulators and BCD mouthpieces will be soaked in a Steramine or bleach solution per the DAN guidelines for up to 30 minutes ensuring that the disinfecting solution enters the body of the second stage. After disinfecting if bleach was used the regulator and BCD will be rinsed in a soap and water solution removing the bleach residue.
- BCD's, Masks, Fins, Weight pockets & belts- after initial washing all gear will be soaked in a Simple Green or another EPA and Manufacturer approved disinfectant in accordance to DAN guidelines. BCD's are treated internally with disinfectant and rinsed.

Dive Courses/ Academic Training:

- When feasible, online training is the best option for keeping person-to-person contact at a minimum. Webinar or Zoom meetings is another good option for academic sessions.
- When an in-person classroom session is required, the class size will be determined by the size and configuration of the classroom and kept within socially distancing guidelines.

- Class sizes will be limited and standard COVID-19 and social distancing protocols will be followed including but not limited to face masks will be worn during all surface intervals and during any out of water class time.
- All Academic and water training sessions will follow the WRSTC^v PADI^{vi} and/or appropriate training organizations COVID-19 guidelines for safe training.

In-Water Diver Training – Out-of-Air (OOA) simulations (As per training agency standards):

- Drill begins
- Diver one, simulating OOA, signals their buddy, “Out of Air!”
- Diver two presents a working second-stage regulator.
- Diver one takes the offered regulator and switches from their primary regulator to their backup second stage while gently purging the donated second stage to check that it is working.
- All the steps from a normal air-sharing drill are practiced – only the switch to the buddy’s regulator is simulated.
- When the drill is completed (after horizontal swim, ascent, etc.), diver one returns the donated regulator to their buddy.
- This method adequately demonstrates all the component skills of an air-sharing drill, including having the OOA diver switch regulators without exposing either diver to an elevated risk of cross contamination.

ⁱ EPA, List N: Disinfectants for use against SARS-CoV-2, April 23, 2020

<https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>

ⁱⁱ DAN, Disinfection of Scuba Equipment and COVID-19, 2020

<https://www.diversalertnetwork.org/emailview/landing/coronavirus/gearDisinfection/index.html>

ⁱⁱⁱ [National Center for Immunization and Respiratory Diseases \(NCIRD\)](#), [Division of Viral Diseases](#), CDC

Cleaning and disinfection guidelines, March 28, 2020, https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fprepare%2Fcleaning-disinfection.html

^{iv} Divers Alert Network (DAN), Disinfection of Scuba Equipment and COVID-19, 2020

<https://www.diversalertnetwork.org/emailview/landing/coronavirus/gearDisinfection/index.html>

^v World Recreation Scuba Training Council (WRSTC), Avoiding disease transmission in diver training, 2020

<https://wrstc.com/avoiding-disease-transmission-in-diver-training/>

^{vi} Professional Association of Dive Instruction (PADI), PADI® and EFR® Course Precautions to Avoid Disease Transmission, April 9 2020,

https://www2.padi.com/mypadi/uploadedFiles/24_Training_Essentials/Training_News_9Apr20.pdf
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Additional References & Supplemental materials

1. Municipal Water and COVID-19 [Internet]. Centers for Disease Control and Prevention. Centers for Disease Control and Prevention; 2020 [cited 2020Mar27]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/php/water.html>
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8. Diving in the Era of COVID-19 [Internet]. Douglas Ebersole MD, April 25, 2020 [cited 2020April27]. Available from <https://www.divetech.com/post/diving-in-the-era-of-covid-19>

Filling Tanks is safe

<https://www.diversalertnetwork.org/emailview/landing/coronavirus/gearDisinfection/index.html>

Divers Alert Network has received questions about the virus entering a scuba cylinder as a result of contaminated air being drawn into the compressor. During the process of compressing air, using the ideal gas equation $T_2 = T_1 \times (P_2/P_1)^{(n-1)/n}$ we can calculate that a four-stage compressor with 1 ATA inlet pressure and an 80°F environment pumping air up to 29 ATA or around 4000 psi, would have an inter-stage temperature inside the cylinder of 224 °F. This calculation is very basic and does not account for anything outside of ideal conditions. However, it does indicate the instantaneous temperature at the moment of peak pressure.

In reality, the outlet valve temperature will likely be 170°F-190°F, and the gas temperature around 150°F, occurring during each stage of the compressor (i.e. four cycles for a four-stage compressor assuming each stage's outlet temperature is the same). **Because this is definitively hot enough to kill SARS-CoV-2, it is therefore unlikely that COVID-19 would survive this process should an infected individual cough into the compressor intake.** It is important to note that infected droplets exhaled by a person can be as small as 0.5 micron; the filter systems alone would not remove these, but **the virus should be dead at that stage.**



**Face mask
must be
worn**



COVID-19

NOVEL CORONAVIRUS



DO NOT ENTER if you have returned from off island in the last 14 days.



DO NOT ENTER if you are under direction to self-monitor or self-isolate.



DO NOT ENTER if you are experiencing any of the following cold/flu symptoms:

- Cough
- Fever
- Runny Nose
- Sore Throat
- Weakness
- Headache



Please wash your hands.

Thank you for helping us stop the spread.

Please keep your social distance.



Social distancing means keeping 6 feet apart from others.



Feeling Sick?

Stay home when you are sick!

If you feel unwell or have the following symptoms
please leave the building and contact your health care provider.
Then follow-up with your supervisor.

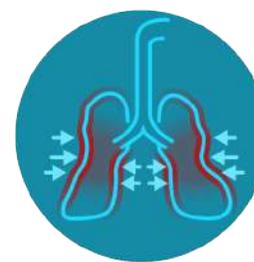
DO NOT ENTER if you have:



FEVER



COUGH

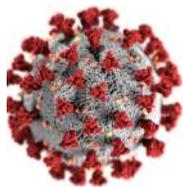


**SHORTNESS
OF BREATH**



cdc.gov/CORONAVIRUS

What you should know about COVID-19 to protect yourself and others



Know about COVID-19

- Coronavirus (COVID-19) is an illness caused by a virus that can spread from person to person.
- The virus that causes COVID-19 is a new coronavirus that has spread throughout the world.
- COVID-19 symptoms can range from mild (or no symptoms) to severe illness.



Know how COVID-19 is spread

- You can become infected by coming into close contact (about 6 feet or two arm lengths) with a person who has COVID-19. COVID-19 is primarily spread from person to person.
- You can become infected from respiratory droplets when an infected person coughs, sneezes, or talks.
- You may also be able to get it by touching a surface or object that has the virus on it, and then by touching your mouth, nose, or eyes.



Protect yourself and others from COVID-19

- There is currently no vaccine to protect against COVID-19. The best way to protect yourself is to avoid being exposed to the virus that causes COVID-19.
- Stay home as much as possible and avoid close contact with others.
- Wear a cloth face covering that covers your nose and mouth in public settings.
- Clean and disinfect frequently touched surfaces.
- Wash your hands often with soap and water for at least 20 seconds, or use an alcohol-based hand sanitizer that contains at least 60% alcohol.



Practice social distancing

- Buy groceries and medicine, go to the doctor, and complete banking activities online when possible.
- If you must go in person, stay at least 6 feet away from others and disinfect items you must touch.
- Get deliveries and takeout, and limit in-person contact as much as possible.



Prevent the spread of COVID-19 if you are sick

- Stay home if you are sick, except to get medical care.
- Avoid public transportation, ride-sharing, or taxis.
- Separate yourself from other people and pets in your home.
- There is no specific treatment for COVID-19, but you can seek medical care to help relieve your symptoms.
- If you need medical attention, call ahead.



Know your risk for severe illness

- Everyone is at risk of getting COVID-19.
- Older adults and people of any age who have serious underlying medical conditions may be at higher risk for more severe illness.



Prevent the spread of COVID-19 if you are sick

Accessible version: <https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/steps-when-sick.html>

If you are sick with COVID-19 or think you might have COVID-19, follow the steps below to help protect other people in your home and community.

Stay home except to get medical care.

- **Stay home.** Most people with COVID-19 have mild illness and are able to recover at home without medical care. Do not leave your home, except to get medical care. Do not visit public areas.
- **Take care of yourself.** Get rest and stay hydrated.
- **Get medical care when needed.** Call your doctor before you go to their office for care. But, if you have trouble breathing or other concerning symptoms, call 911 for immediate help.
- **Avoid public transportation, ride-sharing, or taxis.**



Separate yourself from other people and pets in your home.

- **As much as possible, stay in a specific room** and away from other people and pets in your home. Also, you should use a separate bathroom, if available. If you need to be around other people or animals in or outside of the home, wear a cloth face covering.
 - See COVID-19 and Animals if you have questions about pets: <https://www.cdc.gov/coronavirus/2019-ncov/faq.html#COVID19animals>



Monitor your symptoms.

- **Common symptoms of COVID-19 include fever and cough.** Trouble breathing is a more serious symptom that means you should get medical attention.
- **Follow care instructions from your healthcare provider and local health department.** Your local health authorities will give instructions on checking your symptoms and reporting information.



If you develop **emergency warning signs** for COVID-19 get **medical attention immediately.**

Emergency warning signs include*:

- Trouble breathing
- Persistent pain or pressure in the chest
- New confusion or not able to be woken
- Bluish lips or face

*This list is not all inclusive. Please consult your medical provider for any other symptoms that are severe or concerning to you.

Call 911 if you have a medical emergency. If you have a medical emergency and need to call 911, notify the operator that you have or think you might have, COVID-19. If possible, put on a facemask before medical help arrives.

Call ahead before visiting your doctor.

- **Call ahead.** Many medical visits for routine care are being postponed or done by phone or telemedicine.
- **If you have a medical appointment that cannot be postponed, call your doctor's office.** This will help the office protect themselves and other patients.



If you are sick, wear a cloth covering over your nose and mouth.

- **You should wear a cloth face covering over your nose and mouth** if you must be around other people or animals, including pets (even at home).
- You don't need to wear the cloth face covering if you are alone. If you can't put on a cloth face covering (because of trouble breathing for example), cover your coughs and sneezes in some other way. Try to stay at least 6 feet away from other people. This will help protect the people around you.



Note: During the COVID-19 pandemic, medical grade facemasks are reserved for healthcare workers and some first responders. You may need to make a cloth face covering using a scarf or bandana.



[cdc.gov/coronavirus](https://www.cdc.gov/coronavirus)

Cover your coughs and sneezes.

- **Cover your mouth and nose** with a tissue when you cough or sneeze.
- **Throw used tissues** in a lined trash can.
- **Immediately wash your hands** with soap and water for at least 20 seconds. If soap and water are not available, clean your hands with an alcohol-based hand sanitizer that contains at least 60% alcohol.



Clean your hands often.

- **Wash your hands often** with soap and water for at least 20 seconds. This is especially important after blowing your nose, coughing, or sneezing; going to the bathroom; and before eating or preparing food.
- **Use hand sanitizer** if soap and water are not available. Use an alcohol-based hand sanitizer with at least 60% alcohol, covering all surfaces of your hands and rubbing them together until they feel dry.
- **Soap and water are the best option**, especially if your hands are visibly dirty.
- **Avoid touching** your eyes, nose, and mouth with unwashed hands.



Avoid sharing personal household items.

- **Do not share** dishes, drinking glasses, cups, eating utensils, towels, or bedding with other people in your home.
- **Wash these items thoroughly after using them** with soap and water or put them in the dishwasher.



Clean all “high-touch” surfaces everyday.

- **Clean and disinfect** high-touch surfaces in your “sick room” and bathroom. Let someone else clean and disinfect surfaces in common areas, but not your bedroom and bathroom.
- **If a caregiver or other person needs to clean and disinfect** a sick person’s bedroom or bathroom, they should do so on an as-needed basis. The caregiver/other person should wear a mask and wait as long as possible after the sick person has used the bathroom.



High-touch surfaces include phones, remote controls, counters, tabletops, doorknobs, bathroom fixtures, toilets, keyboards, tablets, and bedside tables.

- **Clean and disinfect areas that may have blood, stool, or body fluids on them.**

- **Use household cleaners and disinfectants.** Clean the area or item with soap and water or another detergent if it is dirty. Then use a household disinfectant.
 - Be sure to follow the instructions on the label to ensure safe and effective use of the product. Many products recommend keeping the surface wet for several minutes to ensure germs are killed. Many also recommend precautions such as wearing gloves and making sure you have good ventilation during use of the product.
 - Most EPA-registered household disinfectants should be effective.

How to discontinue home isolation

- People **with COVID-19 who have stayed home (home isolated)** can stop home isolation under the following conditions:
 - **If you will not have a test** to determine if you are still contagious, you can leave home after these three things have happened:
 - You have had no fever for at least 72 hours (that is three full days of no fever without the use of medicine that reduces fevers)AND
 - other symptoms have improved (for example, when your cough or shortness of breath has improved)AND
 - at least 7 days have passed since your symptoms first appeared.
 - **If you will be tested** to determine if you are still contagious, you can leave home after these three things have happened:
 - You no longer have a fever (without the use of medicine that reduces fevers)AND
 - other symptoms have improved (for example, when your cough or shortness of breath has improved)AND
 - you received two negative tests in a row, 24 hours apart. Your doctor will follow CDC guidelines.



In all cases, follow the guidance of your healthcare provider and local health department. The decision to stop home isolation should be made in consultation with your healthcare provider and state and local health departments. Local decisions depend on local circumstances.



Disinfection of Scuba Equipment and COVID-19

The novel coronavirus, also known as SARS-CoV-2, is the cause of the disease COVID-19, which has killed 87,987 people worldwide at the time of this article (1). SARS-CoV-2 is part of the viral group known as “corona” (Latin for “crown” or “halo”) because of the pattern of proteins that stud its surface (2). It is estimated that this group of viruses is responsible for 15%-30% of acute respiratory infections each year (3). These numbers, however, are subject to rapid change as a result of the current pandemic.

COVID-19 spreads via respiratory secretions in a variety of ways including aerosolized droplets expelled by coughing or sneezing, touching surfaces contaminated with the virus, or close contact with someone who has the virus (2). The incubation period of the virus ranges from 2-14 days (2). One study identified the median incubation as 5.1 days with 97.5% of patients showing symptoms within 11.5 days (3).



Coronaviruses belong to a group of enveloped viruses, which means the virion (the form that the virus takes while outside the host cell) is protected by an oily lipid layer (4). As with most enveloped viruses, damaging or destroying this lipid layer will inactivate the virus. Studies of other coronaviruses have shown their infectivity can be reduced by heat, UV light and alkaline or acidic conditions (5). Because of this, and the fact that enveloped viruses are generally easily inactivated, surfaces can be disinfected using household cleaning products (6).

Because research into SARS-CoV-2 is ongoing, there is debate about how long it can survive on surfaces. Recent studies have shown that it can survive up to 3 hours in an aerosol droplet (such as from a sneeze), 4 hours on copper, 24 hours on cardboard, and 2-3 days on plastic and stainless steel (7). In water, however, it is unclear how long SARS-CoV-2 survives. Studies on the SARS virus, called SARS-CoV-1 and the cause of an epidemic in 2003, have shown that it remained infectious for long periods in surface water (lakes, rivers, wetlands, etc.) and previously pasteurized sewage at both low and ambient temperatures (8). In chlorinated or bromated pools and hot tubs, the CDC specifies that SARS-CoV-2 would be inactivated (9).

Heat

There is very little data on SARS-CoV-2, and much of it is preliminary. In times like these scientists will look to related but slightly harder-to-kill viruses. In the case of the novel coronavirus, some data reports are based on the SARS-CoV-1 virus because it is more difficult to kill than the novel coronavirus. One study found that the SARS-CoV-1 virus loses infectivity after being heated to

133°F (56°C) for 15 minutes (5), and the World Health Organization specifies this temperature and timing as well (10). Another study found that the SARS-CoV-1 virus remains stable between 40°F (4°C) and 98°F (37°C) and would lose infectivity after 30 minutes at 133°F (56°C) (11).

Divers Alert Network has received questions about the virus entering a scuba cylinder as a result of contaminated air being drawn into the compressor. During the process of compressing air, using the ideal gas equation $T_2 = T_1 \times (P_2/P_1)^{(n-1)/n}$ we can calculate that a four-stage compressor with 1 ATA inlet pressure and an 80°F environment pumping air up to 29 ATA or around 4000 psi, would have an inter-stage temperature inside the cylinder of 224 °F. This calculation is very basic and does not account for anything outside of ideal conditions. However, it does indicate the instantaneous temperature at the moment of peak pressure.

In reality, the outlet valve temperature will likely be 170°F-190°F, and the gas temperature around 150°F, occurring during each stage of the compressor (i.e. four cycles for a four-stage compressor assuming each stage's outlet temperature is the same). Because this is definitively hot enough to kill SARS-CoV-2, it is therefore unlikely that COVID-19 would survive this process should an infected individual cough into the compressor intake. It is important to note that infected droplets exhaled by a person can be as small as 0.5 micron; the filter systems alone would not remove these, but the virus should be dead at that stage.

It should be noted, however, that if an individual carried the virus on their hands, either as a result of being infected or unknowingly touching an infected surface, and touches the cylinder valve or fill whip, the virus could potentially enter the cylinder through this route. It has been shown that some viruses are extremely pressure resistant — an order of magnitude above diving gas storage pressures. These studies, however, were conducted on noroviruses, a non-enveloped group of viruses that are generally harder to kill than enveloped viruses (12, 13). Other studies conducted on enveloped viruses such as the flu only explored the efficacy of high hydrostatic pressure at 289.6 MPa (42,003 PSI) (14). It is therefore very important to practice hand washing and disinfection of high-touch areas including cylinders and fill stations, as it is likely that a virus could survive at diving gas storage pressures.

Quaternary Ammonium Compounds

Quaternary ammonium compounds, or quats, are a group of chemicals that are exceedingly common as active ingredients in cleaning solutions. These agents are hydrophobic and as such are effective against enveloped viruses. Quats are thought to react with the viral envelope and “disorganize” it, leading to the contents of the virus leaking out and degrading. In addition, little evidence exists to support viral resistance against these compounds (15). Studies have shown that quats are effective against SARS-CoV-1 (16), and the World Health Organization (WHO) recommends the use of cleaning products containing these compounds in their laboratory biosafety guidance related to coronavirus disease 2019 (17).

There are quaternary ammonium-containing products commonly used in the scuba industry to disinfect equipment. However, these compounds are harmful to the environment, so care must be taken in their use and disposal (18).

Bleach

Bleach, or sodium hypochlorite, has been studied in many different concentrations, and its effectiveness against viruses has been proven. It is a strong oxidant that works by damaging the viral genome (19). According to the WHO, the recommended bleach solution for general disinfection is a 1:100 dilution of 5% sodium hypochlorite. (Note that some brands of bleach have different concentrations of the active ingredient, such as those that are thickened and marketed to reduce splashing.) This dilution yields 0.05% or 500 ppm of the active ingredient and requires a soaking time of 30 minutes if objects are immersed in the solution or at least 10 minutes if sprayed onto a nonporous surface (20). In a study that examined SARS-CoV-2 specifically, it was found that a bleach concentration of 0.1% or 1,000 ppm was needed to reduce infectivity when sprayed onto a hard-non-porous surface (21). A second study on the same virus found that 0.1% sodium hypochlorite would inactivate the virus within 1 minute. A study on SARS-CoV-1 found that both 1:50 (0.1%) and 1:100 (0.05%) inactivated the virus after an immersion of 5 minutes (22).

When using bleach, the use of gloves, a mask, and eye protection is encouraged. Mix the solutions in well-ventilated areas, and use cold water, as hot water will decompose the active ingredient. It is important to never mix bleach with other chemicals and to remove all organic matter from items to be disinfected, as this too will inactivate the active ingredient (21). Items disinfected with bleach must be thoroughly rinsed with fresh water and allowed to dry before use, as it is corrosive to stainless steel (in higher concentrations) and irritating to mucous membranes, skin and eyes (20, 23). Highly concentrated bleach solutions have also been found to be harmful to life-support equipment, causing metal fatigue and in some cases hose failure during the Hart building anthrax attack. As such these solutions are not used by EPA units for dive equipment when effective alternatives exist.

Soap and Water

Washing hands and surfaces with soap and water is one of the most effective ways to protect against the virus. The type of soap used is not important. Washing with soap and water does not kill microorganisms but physically removes them from a surface. Running water by itself can be effective in removing some unwanted material from surfaces, however, soap will physically pull material from the skin and into the water (24).

Divers Alert Network was asked why soap and water will not work for scuba equipment if it is recommended for hands. Soap and water, as stated above, must be combined with mechanical action to be completely effective. Soaking scuba equipment in soapy water alone is not an effective disinfection method. If soapy water was combined with mechanical action, it would theoretically

prove to be more efficient. However, there are some parts of scuba equipment that are not easily reached without disassembly, such as the inside of a regulator. Since an exhaled breath will travel through the inside of a regulator and make contact with the diaphragm, lever arm, and other internal surfaces, soaking the regulator in a disinfectant solution may be a better option.

EPA Guidelines

No matter the active ingredient or method of disinfecting scuba equipment, proven efficacy against the novel coronavirus is of utmost importance. [The EPA's "List N"](#) is a compilation of products that have proven efficacy against SARS-CoV-1 and will therefore also work to kill SARS-CoV-2. Outside of the United States, local governing bodies may also have registered disinfectants. Following the directions for use for each individual product will ensure its efficacy.

When product manufacturers register their products with the EPA, they must submit a list of uses for the product. It is uncommon for registered products on List N to contain "scuba"; more likely to be listed are respirators or materials that scuba equipment is made of. When choosing a disinfectant solution from List N it is important to check that the product's EPA registration specifies its use for the materials in question.

Some products commonly recommended by underwater breathing equipment manufacturers are classified as quaternary ammonium sanitizers registered with the EPA for use in food service only and are not currently on the EPA's List N. The EPA does not consider them to be effective against SARS-CoV-2 when applied on those materials and surfaces.

Best Practices

When selecting a disinfectant, it is of utmost importance to use a product that has proven efficacy against either SARS-CoV-2 or the harder-to-kill SARS-CoV-1. Consult your local governing body's pesticide registration system for its list of registered disinfectants if the products specified in the EPA's List N are unavailable in your area. When using these products, be sure to follow the directions and use the specified personal protective equipment (such as gloves or eye protection) when disinfecting. If registered products cannot be found, be sure to use [disinfection protocols outlined by the CDC](#).

After disinfecting equipment, one must take care not to re-infect the equipment, such as by handling it when storing. Dive shop employees should take care to maintain good hygiene by washing hands frequently and regularly disinfecting high-touch areas, including fill stations (as outlined in the "heat" section of this article).

Finally, consider updating your existing emergency action plan to include a potential COVID-19 infection by staff or customers. Be sure to outline all disinfection protocols and ensure that they are being diligently followed by all staff. The most important consideration is the health and safety of your staff and customers.

If you have any questions, please email us at RiskMitigation@DAN.org.

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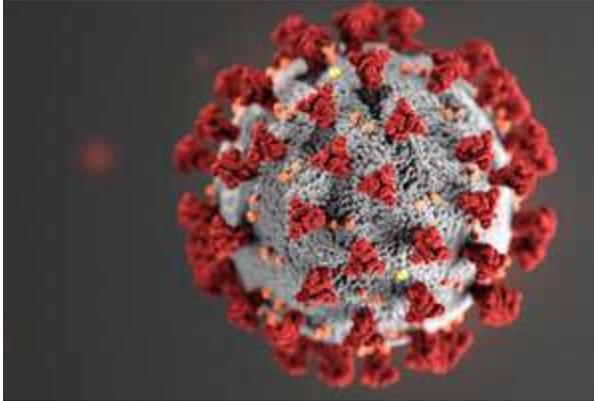
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JOIN DAN

Diving in the Era of COVID-19

The following is an article written by Dr. Douglas Ebersole - physician, technical dive instructor, and a recovered COVID-19 patient. As a medical advisor to the training agency RAID, he was asked to write an article about this latest epidemic. Dr. Ebersole's unique perspective provides for an interesting and informative read on COVID-19 and how it relates to scuba diving. It has been shared with permission from the author.



I come to you as a recreational and technical diving instructor, as a physician consultant for Divers Alert Network, and as a COVID-19 survivor. For me, was just an occupational hazard. I tested positive for COVID-19 after seeing a patient in my cardiology clinic for an unrelated condition who seemed quite short of breath. He was admitted to the ICU and tested positive for COVID-19. Thankfully, he did not require a ventilator and recovered after approximately two weeks in the hospital. I was notified of his positive test one week after my exposure. As I had been wearing my N95 mask when I saw him, I was advised to take my temperature daily and self monitor for symptoms. I did well for a few days and then began developing a cough and profound fatigue followed by fever. I ended up testing positive and spent the next couple of weeks quarantined at home. I have now recovered and will be going back to work this week and look forward to returning to diving. More on that later. I am definitely one of the lucky ones. Thousands of others have been hospitalized, required ventilators, and have died. Our thoughts and prayers should go out to those patients and their families.

While this is a horrific global event, the diving industry will come out the other side. When we do, how do we safely get people diving? This is a multifactorial issue, involving dive shops, dive charters, instructors, and the individual diver/student.

Background

The novel coronavirus, known as SARS-CoV-2, is the cause of the disease COVID-19 which has killed almost 200,000 people worldwide as of today (April 25, 2020). SARS-CoV-2 is part of the viral group known as “corona” (Latin for “crown” or “halo”) because of the pattern of proteins that stud its surface. Coronaviruses are responsible for 15-30% of acute respiratory infections each year. Human to human spread of the virus is by way of large

respiratory droplets (coughing, sneezing, speaking) and touching contaminated surfaces. The incubation period of the virus is 2-14 days with a mean of 5.1 days.

Medical experts believe a vaccine for COVID-19 is still at least 18 months away. Until a vaccine is available or effective therapies are found, the disease will continue to spread. The impact of social distancing and “flattening the curve” has been helping keep people safe and helping to avoid overwhelming our medical resources, but it has also had a massive economic impact on society. This impact has been felt especially severe in the diving industry as it is based on discretionary spending by consumers. Additionally, for many divers, their interest in diving is strongly linked to the ability to travel internationally. Until travel restrictions are lifted and consumers are confident in the ability of the airlines and cruise industry to keep them safe, the dive industry will likely continue to suffer economically. But enough doom and gloom. What can we do as a community to help the dive industry?

Dive Centers

The diver or dive student needs to feel safe before they will go into a store to purchase gear or training, to board a dive charter, or simply to go diving. For the foreseeable future, this is going to mean wearing masks in public, social distancing in dive shops, fewer passengers spread out on dive charters, an emphasis on online training where possible, and smaller class sizes, again to allow students to practice social distancing. Pay by phone or curbside tank drop off could also be effective interventions to reduce the chance of infection.

One positive aspect of this pandemic is it has forced dive shops and training agencies to move towards more online training. E-learning has been growing in popularity for some time and has been embraced by various training agencies and dive centers to greater and lesser degrees. RAID now allows students access to all of their training materials from open water diver through cave diving instructor at no cost. Other training agencies have also moved towards offering certain courses at low or no cost to students in an attempt to keep money flowing into the dive centers during this very difficult time.

Webinars and Zoom conferences have become the new normal. There have been a number of outstanding live conferences put on by The Diver Medic, Dirty Dozen Expeditions, Dive Ninjas, Deeper Discussions and Shallow Thoughts, Divesoft Talk Live, and many others these past few weeks. I imagine dive centers will incorporate this mode of education into some aspects of their academic courses in the future.

Unfortunately, many dive centers will not be able to financially weather this storm, but as a community we need to do everything we can to help support our local dive centers. Take this time out of the water to get your gear serviced. For dive centers not located in diving hotspots like Florida or California, it is going to be really tough until travel restrictions are lifted and their customers feel comfortable getting on an airplane. If you have a trip that is in jeopardy, consider rescheduling rather than cancelling and asking for a refund. Buy gear in preparation for upcoming dive trips in advance of the quarantines and shelter in place orders being lifted. Sign up for continuing education and do the academic portions online

or via a conferencing app with your instructor. Every little bit helps. We are all in this together.

Gear Cleaning

Rinsing off dive gear at the end of each pool session will no longer suffice. We need to truly disinfect any items that could be shared among divers, especially regulators and BCDs.

Divers Alert Network (DAN) has recently published guidelines regarding disinfecting scuba gear. The link is here:

<https://www.diversalertnetwork.org/emailview/landing/coronavirus/gearDisinfection/index.html>

Coronaviruses belong to a group of enveloped viruses, which means the virion (the form that the virus takes while outside the host cell) is protected by an oily lipid layer. As with most enveloped viruses, damaging or destroying this lipid layer will inactivate the virus. Studies of other coronaviruses have shown their infectivity can be reduced by heat, UV light and alkaline or acidic conditions. Because of this, and the fact that enveloped viruses are generally easily inactivated, surfaces can be disinfected using household cleaning products.

Because research into SARS-CoV-2 is ongoing, there is debate about how long it can survive on surfaces. Recent studies have shown that it can survive up to 3 hours in an aerosol droplet (such as from a sneeze), 4 hours on copper, 24 hours on cardboard, and 2-3 days on plastic and stainless steel. In water, however, it is unclear how long SARS-CoV-2 survives. Studies on the SARS virus, called SARS-CoV-1 and the cause of an epidemic in 2003, have shown that it remained infectious for long periods in surface water (lakes, rivers, wetlands, etc.) and previously pasteurized sewage at both low and ambient temperatures. In chlorinated or bromated pools and hot tubs, the CDC specifies that SARS-CoV-2 would be inactivated.

Heat

There is very little data on SARS-CoV-2, and much of it is preliminary. In times like these scientists will look to related but slightly harder-to-kill viruses. In the case of the novel coronavirus, some data reports are based on the SARS-CoV-1 virus because it is more difficult to kill than the novel coronavirus. One study found that the SARS-CoV-1 virus loses infectivity after being heated to 133°F (56°C) for 15 minutes, and the World Health Organization specifies this temperature and timing as well. Another study found that the SARS-CoV-1 virus remains stable between 40°F (4°C) and 98°F (37°C) and would lose infectivity after 30 minutes at 133°F (56°C).

Divers Alert Network has received questions about the virus entering a scuba cylinder as a result of contaminated air being drawn into the compressor. During the process of

compressing air, using the ideal gas equation $T_2 = T_1 \times (P_2/P_1)^{(n-1)/n}$ we can calculate that a four-stage compressor with 1 ATA inlet pressure and an 80°F environment pumping air up to 29 ATA or around 4000 psi, would have an inter-stage temperature inside the cylinder of 224 °F. This calculation is very basic and does not account for anything outside of ideal conditions. However, it does indicate the instantaneous temperature at the moment of peak pressure.

In reality, the outlet valve temperature will likely be 170°F-190°F, and the gas temperature around 150°F, occurring during each stage of the compressor (i.e. four cycles for a four-stage compressor assuming each stage's outlet temperature is the same). Because this is definitively hot enough to kill SARS-CoV-2, it is therefore unlikely that COVID-19 would survive this process should an infected individual cough into the compressor intake. It is important to note that infected droplets exhaled by a person can be as small as 0.5 micron; the filter systems alone would not remove these, but the virus should be dead at that stage.

It should be noted, however, that if an individual carried the virus on their hands, either as a result of being infected or unknowingly touching an infected surface, and touches the cylinder valve or fill whip, the virus could potentially enter the cylinder through this route. It has been shown that some viruses are extremely pressure resistant — an order of magnitude above diving gas storage pressures. These studies, however, were conducted on noroviruses, a non-enveloped group of viruses that are generally harder to kill than enveloped viruses. Other studies conducted on enveloped viruses such as the flu only explored the efficacy of high hydrostatic pressure at 289.6 MPa (42,003 PSI) . It is therefore very important to practice hand washing and disinfection of high-touch areas including cylinders and fill stations, as it is likely that a virus could survive at diving gas storage pressures.

EPA Guidelines

No matter the active ingredient or method of disinfecting scuba equipment, proven efficacy against the novel coronavirus is of utmost importance. [The EPA's "List N"](#) is a compilation of products that have proven efficacy against SARS-CoV-1 and will therefore also work to kill SARS-CoV-2. Outside of the United States, local governing bodies may also have registered disinfectants. Following the directions for use for each individual product will ensure its efficacy.

When product manufacturers register their products with the EPA, they must submit a list of uses for the product. It is uncommon for registered products on List N to contain "scuba"; more likely to be listed are respirators or materials that scuba equipment is made of. When choosing a disinfectant solution from List N it is important to check that the product's EPA registration specifies its use for the materials in question. Some products commonly recommended by underwater breathing equipment manufacturers are classified as quaternary ammonium sanitizers registered with the EPA for use in food

service only and are not currently on the EPA's List N. The EPA does not consider them to be effective against SARS-CoV-2 when applied on those materials and surfaces.

Quaternary Ammonium Compounds



Quaternary ammonium compounds, or quats, are a group of chemicals that are exceedingly common as active ingredients in cleaning solutions. These agents are hydrophobic and as such are effective against enveloped viruses. Quats are thought to react with the viral envelope and “disorganize” it, leading to the contents of the virus leaking out and degrading. In addition, little evidence exists to support viral resistance against these compounds.

Studies have shown that quats are effective against SARS-CoV-1, and the World Health Organization (WHO) recommends the use of cleaning products containing these compounds in their laboratory biosafety guidance related to coronavirus disease 2019.



Simple Green has been shown to be effective against viruses similar to SARS-CoV-2 when used in accordance to its directions for use

While not on the List N , another agent that has been shown to be effective against SARS-CoV-1 is MadaCide-1. It's labeling states that it is effective against the SARS-CoV-1 virus if used with a contact time of two minutes and other viruses such as Hepatitis B and Hepatitis C with five minutes of contact time.

While Steramine is an effective sanitizing product, and some manufacturers recommend it for use on dive gear, it does not appear on the EPA's "List N" and is thus not endorsed for removal of the new coronavirus.

Bleach



When using bleach, the use of gloves, a mask, and eye protection is encouraged. Mix the solutions in well-ventilated areas, and use cold water, as hot water will decompose the active ingredient. It is important to never mix bleach with other chemicals and to remove all organic matter from items to be disinfected, as this too will inactivate the active ingredient. Items disinfected with bleach must be thoroughly rinsed with fresh water and allowed to dry before use, as it is corrosive to stainless steel (in higher concentrations) and irritating to mucous membranes, skin and eyes. Highly concentrated bleach solutions have also been found to be harmful to life-support equipment, causing metal fatigue and in some cases hose failure during the Hart building anthrax attack. As such these solutions are not used by EPA units for dive equipment when effective alternatives exist.

Soap and Water

Washing hands and surfaces with soap and water is one of the most effective ways to protect against the virus. The type of soap used is not important. Washing with soap and water does not kill microorganisms but physically removes them from a surface. Running water by itself can be effective in removing some unwanted material from surfaces, however, soap will physically pull material from the skin and into the water. Divers Alert Network was asked why soap and water will not work for scuba equipment if it is recommended for hands. Soap and water, as stated above, must be combined with mechanical action to be completely effective. Soaking scuba equipment in soapy water alone is not an effective disinfection method. If soapy water was combined with mechanical action, it would theoretically prove to be more efficient. However, there are some parts of scuba equipment that are not easily reached without disassembly, such as the inside of a regulator. Since an exhaled breath will travel through the inside of a regulator and make contact with the diaphragm, lever arm, and other internal surfaces, soaking the regulator in a disinfectant solution may be a better option.

Best Practices

When selecting a disinfectant, it is of utmost importance to use a product that has proven efficacy against either SARS-CoV-2 or the harder-to-kill SARS-CoV-1. Consult your local governing body's pesticide registration system for its list of registered disinfectants if the products specified in the EPA's List N are unavailable in your area. When using these products, be sure to follow the directions and use the specified personal protective equipment (such as gloves or eye protection) when disinfecting. If registered products cannot be found, be sure to use [disinfection protocols outlined by the CDC](#).

To disinfect equipment to kill the virus that causes COVID-19, a disinfectant on the EPA's List N should be used. Before using a product, check to see if it has been registered with the EPA for use on dive equipment, respirators or the materials these are made of.

Alternatively, the CDC recommends a 4:100 bleach solution (1/3 cup of bleach in 1 gallon of water) with a contact time of 1 minute.

After disinfecting equipment, one must take care not to re-infect the equipment, such as by handling it when storing. Dive shop employees should take care to maintain good hygiene by washing hands frequently and regularly disinfecting high-touch areas, including fill stations (as outlined in the "heat" section of this article).

When using any disinfectant, be sure to follow the manufacturer's instructions for use. Follow this with a thorough rinse in fresh water, and allow the equipment to dry completely before use.

Finally, consider updating your existing emergency action plan to include a potential COVID-19 infection by staff or customers. Be sure to outline all disinfection protocols and ensure that they are being diligently followed by all staff. The most important consideration is the health and safety of your staff and customers.

Divers Alert Network (DAN) has also issued some advice regarding protecting divers when they travel—and especially with respect to renting gear.

DAN states: “Equipment can be effectively sanitized by submerging it in a 10% bleach solution or using a cleaning product such as Steramine tablets or any other quaternary ammonium compound. Be sure to use these products according to the manufacturer’s directions and then rinse the gear with fresh water.

“Products that are commonly used to clean dive gear but are ineffective against coronavirus include antibacterial and chlorhexidine mouthwashes or sprays. Hot soapy water must be paired with mechanical action such as scrubbing with a soft toothbrush to be effective.”

If you’re traveling and using rental gear, DAN suggests using a “household disinfecting wipe” to clean your regulator mouthpiece, snorkel, BCD oral inflator and the inside of your mask, and then rinsing with fresh water before use. DAN advises you to ask your operator to sanitize the equipment you’re renting—if you don’t have access to wipes to do it yourself.

Dive Training



The main issue with training divers is how do we effectively teach them the important skill of air-sharing without potentially putting their health at risk. Training agencies require students to demonstrate in-water “air-sharing” exercises to meet general standards published by the various diving standards organizations. Widespread concerns surrounding the novel coronavirus and COVID-19 infection have demanded we allow changes to the way this skill is demonstrated and practiced during both confined skills training and open water certification dives.

Since RAID has a mandatory S-Drill and is a “primary” gas-sharing agency, cross-contamination is impossible to reduce. Therefore, RAID has designed a new protocol that, with only a minor change, will still meet the requirements for certification. Other agencies are considering similar changes in their training standards.

In simplified terms, to demonstrate a classic air-sharing drill, one diver gives their buddy an out-of-air (OOA) signal, their buddy donates their primary regulator second stage, and the diver simulating OOA places it into their mouth and breathes from it.

Under present circumstances, this method could present an opportunity for cross-infection, not just in chlorinated swimming pool water but also, certainly, in freshwater or the open ocean.

In the interests of diver and instructor safety, and until further notice, RAID is asking its members to follow this revised protocol for S-Drills and in-place OOA simulations.

1. Drill begins
2. Diver one, simulating OOA, signals their buddy, "Out of Air!"
3. Diver two presents a working second-stage regulator.
4. Diver one takes the offered regulator and switches from their primary regulator to their backup second stage while gently purging the donated second stage to check that it is working.
5. All the steps from a normal air-sharing drill are practiced – only the switch to the buddy's regulator is simulated.
6. When the drill is completed (after horizontal swim, ascent, etc.), diver one returns the donated regulator to their buddy.

This method adequately demonstrates all of the component skills of an air-sharing drill, including having the OOA diver switch regulators without exposing either diver to an elevated risk of cross contamination.

Returning to Diving after COVID-19

What about the diver, like myself, who has contracted COVID-19? When can they safely return to diving? Unfortunately, the answer to that question is not known at the present time, but is not likely to be a "one size fits all" answer.

Like with any illness, the diver will need to completely resolve their symptoms and have good exercise tolerance before even considering a return to diving. However, COVID-19 in some cases aggressively attacks the pulmonary and cardiovascular system and the duration of these effects is unknown, but likely highly variable among individuals.

COVID-19 (SARS-COV-2) is a coronavirus and is similar to, though not exactly like, the coronavirus (SARS-COV-1) that caused SARS (severe acute respiratory syndrome). As we don't have a great deal of long term data yet on COVID-19, looking at the longer term effects from SARS-COV-1 may be helpful in making recommendations for divers until we have better data on COVID-19.

A study of the pulmonary function and exercise capacity in survivors of severe acute respiratory syndrome (SARS) was reported in the European Respiratory Journal in 2004. They looked at 46 survivors of SARS 3 months after hospital discharge. (Eur Reptsir J

2004:24:436-442). No abnormalities were detected in the pulmonary function tests in 23 (50%) of the patients. Abnormalities of forced vital capacity (FVC), forced expiratory volume in one second (FEV1), FEV1/FVC and TLCO were detected in seven (15%), 12 (25%), one, (2%), and 18 (39%) of patients, respectively. All of these abnormalities were mild except in one case. Breathing reserve was low in four patients and significant oxygen desaturation was detected in another four patients. Comparison of the measured exercise capacity with resting pulmonary function tests showed many cases of discordance in impairment. They concluded that pulmonary function defects were detected in half of the recovered severe acute respiratory syndrome patients 3 months after hospital discharge, but the impairment was mild in almost all cases. Many patients had reduced exercise capacity that could not be accounted for by the impairment in pulmonary function.

Recently, a preliminary report from Frank Hartig, a senior physician at the Innsbruck University Clinic in Austria, was published in the dive magazine "Wetnotes" and an English translation was posted on Facebook. Dr. Hartig is an avid diver and heads the emergency department in the hospital and is responsible for coordinating the care of their COVID-19 patients. He reports having treated dozens of COVID-19 patients in recent weeks, six of whom were divers. All six of these divers did not require hospitalization and felt as though they had recovered from their illness 5-6 weeks earlier. However, two of the patients showed hypoxemia under stress, two demonstrated reactive airway disease, and four showed "impressive" lung changes on CT scans. The English translation reported "the damage to the lungs is irreversible" though the follow-up tests only occurred approximately six weeks after clinical resolution of symptoms.

We must interpret this small case series with caution for now while awaiting further data. It is definitely interesting, quite thought provoking, and is hypothesis generating for future research. However, it is only six divers and is very short follow-up. It is, however, a good reason to pause and consider how to decide when to return to diving after being infected with COVID-19. We just need to wait for larger, more controlled studies with longer follow up before becoming overly concerned and making sweeping changes to evaluation of fitness to dive protocols around the world.

The Undersea and Hyperbaric Medical Society put out a position paper on their website (www.uhms.org) on April 24, 2020. They agree that at the present time, we simply do not have sufficient data to support or refute the proclamations made by the case series from Dr. Hartig. They feel the list of potential variables related to how this disease manifests, its clinical course, and long-term prognosis is lengthy and may include factors such as underlying medical conditions, age, disease severity, and secondary complications. Case reports suffer from multiple design weaknesses to include a lack of controls and randomization, which makes any conclusions that we may want to generalize to a larger population suspect. While these findings are indeed disquieting, it will take time before the potential impact on individual health, and any lasting effects on lung or heart function, are captured in the peer-reviewed literature.

A position paper by the Belgian Society for Diving and Hyperbaric Medicine was published on April 12, 2020 in an attempt to provide guidelines to physicians evaluating divers who have suffered COVID-19. Here are their recommendations:

<http://www.sbmhs.be/2020%200412%20Position%20of%20the%20BVOOG.pdf?fbclid=IwAR2KlmCG3M8DYwEO5eE8qJE6Dy7hMMoCCyR3F6h6rvajMs8dsfws4TQnNNo>)

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Position of the Belgian Society for Diving and Hyperbaric Medicine (SBMHS-BVOOG) on Diving after COVID-19 pulmonary infection

April 12th, 2020

The COVID-19 pandemic has had a major impact on recreational and professional diving activities, with an almost complete cessation of this activity during many weeks/months. These measures were a logical consequence of Government and Public Health Care recommendations to limit unnecessary commuting but also because it is virtually impossible to observe the regulations of “social distancing” and avoiding the possible sharing of divers’ breathing equipment. Lastly, there is a real possibility that emergency first aid teams may be overwhelmed by cases related to COVID-19 or the logistics involved (decontamination procedures), and not be able to respond in a timely and efficient manner. When the precautionary measures to combat the pandemic will be relaxed, it is important to resume normal recreational and professional diving activities as soon as reasonably possible, both for the social, physical and mental welfare of the diving population. The question has been raised, whether having suffered and recovered from COVID-19 has any influence on the medical fitness to dive or the risk of diving accidents.

Novel Corona Virus (SARS-CoV-2) infection (COVID-19) can manifest itself with various clinical syndromes, ranging from no symptoms, over a flu-like syndrome, to severe pulmonary compromise (ARDS – Acute Respiratory Distress Syndrome) and cardiac symptoms (cardiomyopathy). Factors that determine the severity of COVID-19 symptoms are but incompletely known: older persons, suffering from other medical conditions, are an obvious group at risk; also, heavy smokers and obese persons seem to have more risk of complications; however, there are numerous cases reported of young, previously healthy persons in whom the disease has had a sudden and dramatic evolution. In general, if the symptoms were mild and improve within a week to complete resolution, the risk for permanent damage to heart or lungs is very low.

The Board of the SBMHS-BVOOG, after examining the relevant and available literature and discussion with several experts, recommends:

1. Risk of spreading COVID-19: a person who has had symptomatic COVID-19 can, just as someone who was infected but did not have symptoms, spread viral particles in nasal or oral secretions for a certain period after recovery, and thus, still be contagious to others. The exact period during which this is possible is not known and probably variable, but has been reported to be up to 37 days or longer. This is an important consideration for the possible sharing of breathing regulators (buddy-breathing) but also for rescue actions in case of a diving accident.

Therefore, it is recommended:

- a. That divers who have had symptomatic COVID-19, wait a minimum of TWO months, preferable three, before resuming their diving activity.
 - b. That divers who have tested positive for COVID-19 but have remained completely asymptomatic, wait ONE month before resuming diving.
 - c. Divers who have never had symptoms and have not been tested (who either have not been infected or have had the infection completely asymptomatic) may not have developed immunity against the disease (currently, serological tests are not widely available and do not confirm with 100% certainty a sufficient level of immunity). Therefore, they may still be infected by other divers and would need to observe a waiting period after the release of the confinement period. The duration of this waiting period may be variable depending on the local situation (type of diving, location and local organization).
 - d. Divers and dive centers should observe strictly the guidelines for disinfection of diving gear (as issued by the diving Federations and DAN Europe).
2. Risk for pulmonary overpressure syndrome (lung barotrauma): a person who has had COVID-19 infection with severe pulmonary symptoms may suffer from prolonged or even permanent pulmonary damage, even if the lung function seems to have returned to (near) normal. This damage may give a higher risk for lung barotrauma, even after dives without a rapid or uncontrolled ascent.

Therefore, it is recommended that a diver who has been hospitalized with or because of pulmonary symptoms in relation to COVID-19, should, after the three-month waiting period (as indicated above), undergo complete pulmonary function testing as well as a high- resolution CT scanning of the lungs.

Pulmonary function testing should include FVC, FEV1, PEF25-50-75, RV and FEV1/FVC), and the CT scan should show a return to normal, before resuming diving. It is important that these tests should be interpreted and validated by a medical officer with specific knowledge of diving medicine. If major pulmonary symptoms have been present, even if not requiring hospitalization, pulmonary damage may have occurred and a pulmonary function testing and CT-scan are useful tests.

3. Risk for cardiac events: in the context of general illness and severe pulmonary infection, a COVID-19 cardiomyopathy may not a prominent symptom and may even go unnoticed during the acute phase of the disease. This however may be the cause of heart muscle damage and subsequent scarring. Cardiomyopathy or cardiac scar tissue may be an important factor in the occurrence of sudden cardiac failure and sudden death during diving immersion. Therefore, it is recommended that a diver who has been hospitalized with or because of cardiac or pulmonary symptoms in relation to COVID-19, should, after the three-month waiting period (as indicated above), undergo cardiac evaluation with echocardiography and exercise test (exercise electrocardiography) to ascertain normal cardiac function. If major pulmonary symptoms or extreme fatigue/exhaustion have been present, even if not requiring hospitalization, this may indicate a possible cardiomyopathy and cardiac testing is useful. Pulmonary oxygen toxicity: at this time, there is very little known as to a possible increased sensitivity of the pulmonary tissue to the toxic effects of oxygen; therefore, a prudent attitude would be that technical diving (with prolonged breathing of hyperoxic gas, with a pO₂ of 1.3 ATA or higher) should be avoided. Simple “nitrox” diving (whereby a maximum pO₂ of 1.4 ATA is only breathed for short periods, at the deepest part of the dive) should not present any problem.
4. Pulmonary oxygen toxicity: at this time, there is very little known as to a possible increased sensitivity of the pulmonary tissue to the toxic effects of oxygen; therefore, a prudent attitude would be that technical diving (with prolonged breathing of hyperoxic gas, with a pO₂ of 1.3 ATA or higher) should be avoided. Simple “nitrox” diving (whereby a maximum pO₂ of 1.4 ATA is only breathed for short periods, at the deepest part of the dive) should not present any problem.
5. Decompression sickness: even less is known about the possible alteration of the “bubble filter” function of the lung after COVID-19 pulmonary infection. This may imply that the risk for decompression sickness could increase significantly. It has been shown that after deeper recreational dives (close to the No-Decompression-Limit – NDL – of the dive computer, or with mandatory decompression stops), in 70-90% of cases, inert gas bubbles can be detected. These bubbles circulate in the venous blood, and are filtered out by the pulmonary capillary circulation and thus usually do not cause decompression sickness. If the lung “bubble filter” would become less efficient, these bubbles could pass into the arterial circulation (“arterialize”), comparably to divers with a Patent Foramen Ovale, and cause cerebral, vestibular or other types of decompression sickness. Therefore, a prudent attitude would be that divers who have suffered from pulmonary symptoms of COVID-19, limit their dives temporarily (or definitively) to well within the NDL of their computer (so that at no moment during the dive, the computer indicates mandatory decompression stops).

These recommendations are made on the basis of scientific data available on April 12th, 2020. It is likely that these will evolve if and when new data or insights become available.

These recommendations are very sensible and should help guide us while we await more data. If a diver suffered a mild case of COVID-19 and is now back to jogging 5 miles per day without issues, he or she can probably return to diving without restrictions or further testing. However, if a diver had a prolonged ICU stay from the infection, especially if they required intubation, maybe they should have follow up CT scans showing resolution of the changes and maybe even pulmonary function testing and echocardiography prior to resuming diving. Only time -- and, more importantly, DATA will tell.

What does this all mean? We are in the midst of a generation-defining pandemic the world has not seen in 100 years. There is an appropriate amount of fear and uncertainty gripping the planet. Along with everyone else, we in the diving industry are concerned as to what the long-term effects of this pandemic will be on our livelihoods and the sport we all love.

First of all we need to make sure our sport is safe for our students, our certified divers, and for ourselves. This means changing disinfecting policies, changing some aspects of training, and allowing for social distancing in our dive centers, our dive charters, etc. The best advice at the moment is for any diver who has had a symptomatic case of COVID-19 to be examined by a physician with diving knowledge prior to resuming diving.

As for myself, I am one of the lucky ones. My symptoms of COVID-19 were no worse than a bad case of the flu. I had a normal chest x-ray, normal oxygen saturations, and never had symptoms of shortness of breath. After about two weeks, all of my symptoms resolved and my exercise tolerance on my home rowing machine was back to baseline. I am looking forward to slowly getting back to scuba diving sometime in the next few weeks.

Be safe, everyone. We will come out the other side of this – hopefully as better people in better nations, and living in a better world.



I would like to thank Divers Alert Network and the long list of diving educators, dive instructors, training agencies, and equipment manufacturers whose edits and input helped me put this paper together.

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<https://www.divetech.com/post/diving-in-the-era-of-covid-19>

PADI® and EFR® Course Precautions to Avoid Disease Transmission

The most significant steps you can take toward reducing disease transmission is to follow local health and safety authority guidelines and [World Health Organization](#) recommendations, and following manufacturer's guidelines for disinfection. For example, do not teach when you are ill, reschedule training for students who are ill, and maintain best practices for personal hygiene/handwashing and routine cleaning/disinfection of common surfaces. Have a policy for routine equipment disinfection based on manufacturer's guidelines; especially for multi-user equipment and equipment used during training, with focus on regulator second stages, BCDs and BCD inflators, masks (diving, oxygen and rescue breathing) and CPR mannequins.

When student divers train in their own equipment, explain the importance of disinfection, particularly of anything that will be shared, such as alternate air sources. The goal is to have only one person use a mouthpiece until disinfection can reoccur. For this reason, maintaining the same buddy teams during alternate air source use skills is important.

Make your disinfection policy known to students and customers. It will help assure them that you follow best practices and that you proactively take precautions for their health and safety.

Divemaster Course Exercise 5: Equipment Exchange

Update the PADI *Instructor Manual*, Divemaster Course Instructor Guide, Section Three Waterskills Development, Divemaster Exercise 5: Equipment Exchange as follows:

In confined water, demonstrate the ability to effectively respond to an unusual circumstance underwater by exchanging all scuba equipment (except exposure suits and weight belts) with a buddy while neutrally buoyant-sharing a single regulator second stage-earning a minimum score of 3. During the exchange, when divers switch scuba kits, they should breathe from their buddy's alternate air source, not the primary second stage. Instead of exchanging masks, a diver removes the mask, hands it to the buddy, gets it back and replaces own mask.

Conduct:

- ~~• Orient candidates to procedures for sharing a single regulator second stage, including exhalation between breaths and not covering the purge button as the regulator is passed back and forth.~~
- Give buddy teams less than five minutes to discuss the exercise.
- ~~• Have candidates begin sharing a single regulator second stage in water too deep in which to stand, exchange equipment and continue sharing air until they reach shallow water.~~
- Have candidates complete the exercise in water too deep in which to stand, instructing them to avoid touching the bottom or breaking the surface.
- Do not assign problems — allow candidates to resolve any naturally-occurring ones.

Score	Criteria
5	Task performed in a well-thought-out, efficient and purposeful manner with no sign of problems; very low anxiety level. Looks routine and appears easy.
4	Task performed competently with a relatively low anxiety level. Challenges encountered were easily and efficiently handled.
3	Complete exchange occurred without surfacing while neutrally buoyant However, numerous challenges were encountered that delayed the speed and efficiency of the performance. This score is also appropriate for a diver overly dependent on another.
2	Significant problems demonstrated, and exchange completed only after one or both team members surfaced once.
1	Inability to complete the exchange; or exchange completed with one or both divers surfacing more than once.

The following are skill techniques can be used if there is a concern for disease or infection transmission.

Alternate Inflator/Regulator use in Alternate Air Source Training

To reduce concern for disease transmission during alternate air source training when student diver equipment is fitted with alternate inflator/regulators, here are some options.

1. Divers can choose a partner they are comfortable with (family member, for example).
2. The donor's regulator can be fitted with an additional long hose second stage.
 - The skill can be conducted as usual with an octopus alternate air source.
 - Or, to practice use of the alternate regulator/inflator, the donor breathes from the long hose (as if it were a primary) and offers the primary to the receiver; then discontinues breathing from the long hose regulator and begins breathing on the alternate inflator/regulator to complete the skill as intended.

Rescue Diver and Emergency Oxygen Provider Courses

When training using oxygen kits, disinfect oxygen masks with disinfection wipes between users. After class, clean mask and tubing according to manufacturer's recommendations.

For more specific information and resources on sanitizing products, see the [Diver's Alert Network](#) post.

Rescue Diver Course Exercise 7 (Unresponsive Diver at the Surface)

Skill requirements include having students (among other listed requirements) demonstrate inwater rescue breathing using mouth-to-rescue breathing mask and mouth-to-mouth methods.

Rescue Breathing Mask technique

When using the rescue breathing masks, ensure each diver has a mask (with valve) that is used on that diver during training. The rescuer does not make lip contact with the mask, and the valve redirects the victim's breath away from the rescuer. After training, clean the mask and valve according to manufacturer guidelines.

Mouth-to-Mouth technique

For the mouth-to-mouth rescue breathing method, rescuers who are concerned with cross contamination can apply any of the following methods, as long as the performance requirement can be met:

1. Use a rescue breathing mask on the victim but use mouth-to-mouth techniques (i.e. pinching nose over rescue breathing mask) and follow the procedures as mentioned in the rescue breathing mask technique;
2. Use face shields that are commonly used with CPR mannequins during the exercise to avoid skin-to-skin contact.
3. Simulate the required "removing the diver's mask" step of the performance requirement and keep the victims' diver mask in place so that the rescuer does not need to touch the victim's nose directly.

Emergency First Response® Training and Mannequin Hygiene Reminders

It's important to follow CPR mannequin disinfection procedures during and after training. Check with the mannequin manufacturer for cleaning recommendations specific to their products.

Mannequin cleaning after class, typically includes disinfection of the mannequin head, discarding lung bag and wiping down the mannequin chest and body after. If more than one student will be using a mannequin, ensure that each student has an individual face shield and/or wipes the face of the mannequin using disinfecting wipes between students.

Providing student access to hand washing facilities and liquid hand sanitizer is useful as well.

Check with the mannequin manufacturer or local health authorities for any relevant updates before conducting the Mannequin Cleaning Workshop in the EFR Instructor course.

Here are some mannequin hygiene resources available from various resuscitation councils:

- [United Kingdom](#)
- [Australia and New Zealand](#)
- [American Heart Association](#)



Coronavirus Disease 2019 (COVID-19)

Cleaning and Disinfection for Community Facilities

Interim Recommendations for U.S. Community Facilities with Suspected/Confirmed Coronavirus Disease 2019 (COVID-19)

Summary of Recent Changes

Revisions made on 4/1/2020:

- Added guidance on the timing of disinfection after a suspected/confirmed COVID-19 case

Revisions made on 3/26/2020:

- Updated guidance for cleaning and disinfection of soft (porous) surfaces
- Updated links to EPA-registered disinfectant list
- Added guidance for disinfection of electronics
- Updated core disinfection/cleaning guidance

Background

There is much to learn about the novel coronavirus (SARS-CoV-2) that causes [coronavirus disease 2019 \(COVID-19\)](#). Based on what is currently known about the virus and about similar coronaviruses that cause SARS and MERS, spread from person-to-person happens most frequently among close contacts (within about 6 feet). This type of transmission occurs via respiratory droplets, but disease transmission via infectious aerosols is currently uncertain. Transmission of SARS-CoV-2 to persons from surfaces contaminated with the virus has not been documented. Transmission of coronavirus in general occurs much more commonly through respiratory droplets than through fomites. Current evidence suggests that SARS-CoV-2 may remain viable for hours to days on surfaces made from a variety of materials. Cleaning of visibly dirty surfaces followed by disinfection is a best practice measure for prevention of COVID-19 and other viral respiratory illnesses in community settings.

It is unknown how long the air inside a room occupied by someone with confirmed COVID-19 remains potentially infectious. Facilities will need to consider factors such as the size of the room and the ventilation system design (including flowrate [air changes per hour] and location of supply and exhaust vents) when deciding how long to close off rooms or areas used by ill persons before beginning disinfection. Taking measures to improve ventilation in an area or room where someone was ill or suspected to be ill with COVID-19 will help shorten the time it takes respiratory droplets to be removed from the air.

Purpose

This guidance provides recommendations on the cleaning and disinfection of rooms or areas occupied by those with suspected or with confirmed COVID-19. It is aimed at limiting the survival of SARS-CoV-2 in key environments. These recommendations will be updated if additional information becomes available.

These guidelines are focused on community, non-healthcare facilities such as schools, institutions of higher education, offices, daycare centers, businesses, and community centers that do, and do not, house persons overnight. These guidelines are not meant for [cleaning staff in healthcare facilities](#) or repatriation sites, [households](#), or for others for whom specific guidance already exists.

Definitions

- *Community facilities* such as schools, daycare centers, and businesses comprise most non-healthcare settings that are visited by the general public outside of a household.
- *Cleaning* refers to the removal of dirt and impurities, including germs, from surfaces. Cleaning alone does not kill germs. But by removing the germs, it decreases their number and therefore any risk of spreading infection.
- *Disinfecting* works by using chemicals, for example EPA-registered disinfectants, to kill germs on surfaces. This process does not necessarily clean dirty surfaces or remove germs. But killing germs remaining on a surface after cleaning further reduces any risk of spreading infection.

Cleaning and Disinfection After Persons Suspected/Confirmed to Have COVID-19 Have Been in the Facility

Timing and location of cleaning and disinfection of surfaces

- At a school, daycare center, office, or other facility that **does not house people overnight**:
 - Close off areas visited by the ill persons. Open outside doors and windows and use ventilating fans to increase air circulation in the area. Wait 24 hours or as long as practical before beginning cleaning and disinfection.
 - **Cleaning staff should clean and disinfect all areas such as offices, bathrooms, common areas, shared electronic equipment (like tablets, touch screens, keyboards, remote controls, and ATM machines) used by the ill persons**, focusing especially on frequently touched surfaces.
- At a facility that **does house people overnight**:
 - Follow Interim Guidance for [US Institutions of Higher Education](#) on working with state and local health officials to isolate ill persons and provide temporary housing as needed.
 - Close off areas visited by the ill persons. Open outside doors and windows and use ventilating fans to increase air circulation in the area. Wait 24 hours or as long as practical before beginning cleaning and disinfection.
 - In areas where ill persons are being housed in isolation, follow [Interim Guidance for Environmental Cleaning and Disinfection for U.S. Households with Suspected or Confirmed Coronavirus Disease 2019](#). This includes **focusing on cleaning and disinfecting common areas where staff/others providing services may come into contact with ill persons but reducing cleaning and disinfection of bedrooms/bathrooms used by ill persons to as-needed**.
 - In areas where ill persons have visited or used, continue routine cleaning and disinfection as in this guidance.
- If it has been more than 7 days since the person with suspected/confirmed COVID-19 visited or used the facility, additional cleaning and disinfection is not necessary.

How to Clean and Disinfect

Hard (Non-porous) Surfaces

- If surfaces are dirty, they should be cleaned using a detergent or soap and water prior to disinfection.
- For disinfection, most common EPA-registered household disinfectants should be effective.

- A list of products that are EPA-approved for use against the virus that causes COVID-19 is available [here](#)   . Follow the manufacturer's instructions for all cleaning and disinfection products for concentration, application method and contact time, etc.
- Additionally, diluted household bleach solutions (at least 1000ppm sodium hypochlorite) can be used if appropriate for the surface. Follow manufacturer's instructions for application, ensuring a contact time of at least 1 minute, and allowing proper ventilation during and after application. Check to ensure the product is not past its expiration date. Never mix household bleach with ammonia or any other cleanser. Unexpired household bleach will be effective against coronaviruses when properly diluted.
 - Prepare a bleach solution by mixing:
 - 5 tablespoons (1/3 cup) bleach per gallon of water or
 - 4 teaspoons bleach per quart of water

Soft (Porous) Surfaces

- For soft (porous) surfaces such as carpeted floor, rugs, and drapes, remove visible contamination if present and clean with appropriate cleaners indicated for use on these surfaces. After cleaning:
 - If the items can be laundered, launder items in accordance with the manufacturer's instructions using the warmest appropriate water setting for the items and then dry items completely.
 - Otherwise, use products [that are EPA-approved for use against the virus that causes COVID-19](#)   and that are suitable for porous surfaces

Electronics

- For electronics such as tablets, touch screens, keyboards, remote controls, and ATM machines, remove visible contamination if present.
 - Follow the manufacturer's instructions for all cleaning and disinfection products.
 - Consider use of wipeable covers for electronics.
 - If no manufacturer guidance is available, consider the use of alcohol-based wipes or sprays containing at least 70% alcohol to disinfect touch screens. Dry surfaces thoroughly to avoid pooling of liquids.

Linens, Clothing, and Other Items That Go in the Laundry

- In order to minimize the possibility of dispersing virus through the air, do not shake dirty laundry.
- Wash items as appropriate in accordance with the manufacturer's instructions. If possible, launder items using the warmest appropriate water setting for the items and dry items completely. Dirty laundry that has been in contact with an ill person can be washed with other people's items.
- Clean and disinfect hampers or other carts for transporting laundry according to guidance above for hard or soft surfaces.

Personal Protective Equipment (PPE) and Hand Hygiene

- **The risk of exposure to cleaning staff is inherently low. Cleaning staff should wear disposable gloves and gowns for all tasks in the cleaning process, including handling trash.**
 - Gloves and gowns should be compatible with the disinfectant products being used.
 - Additional PPE might be required based on the cleaning/disinfectant products being used and whether there is a risk of splash.
 - Gloves and gowns should be removed carefully to avoid contamination of the wearer and the surrounding area. Be sure to **clean hands** after removing gloves.

- If gowns are not available, coveralls, aprons or work uniforms can be worn during cleaning and disinfecting. Reusable (washable) clothing should be laundered afterwards. Clean hands after handling dirty laundry.
- Gloves should be removed after cleaning a room or area occupied by ill persons. [Clean hands](#) immediately after gloves are removed.
- Cleaning staff should immediately report breaches in PPE such as a tear in gloves or any other potential exposures to their supervisor.
- **Cleaning staff and others should [clean hands often](#)**, including immediately after removing gloves and after contact with an ill person, by washing hands with soap and water for 20 seconds. If soap and water are not available and hands are not visibly dirty, an alcohol-based hand sanitizer that contains at least 60% alcohol may be used. However, if hands are visibly dirty, always wash hands with soap and water.
- Follow normal preventive actions while at work and home, including cleaning hands and avoiding touching eyes, nose, or mouth with unwashed hands.
 - Additional key times to clean hands include:
 - After blowing one's nose, coughing, or sneezing.
 - After using the restroom.
 - Before eating or preparing food.
 - After contact with animals or pets.
 - Before and after providing routine care for another person who needs assistance such as a child.

Additional Considerations for Employers

- Employers should work with their local and state health departments to ensure appropriate local protocols and guidelines, such as updated/additional guidance for cleaning and disinfection, are followed, including for identification of new potential cases of COVID-19.
- Employers should educate staff and workers performing cleaning, laundry, and trash pick-up activities to recognize the symptoms of COVID-19 and provide instructions on what to do if they develop [symptoms](#) within 14 days after their last possible exposure to the virus. At a minimum, any staff should immediately notify their supervisor and the local health department if they develop symptoms of COVID-19. The health department will provide guidance on what actions need to be taken.
- Employers should develop policies for worker protection and provide training to all cleaning staff on site prior to providing cleaning tasks. Training should include when to use PPE, what PPE is necessary, how to properly don (put on), use, and doff (take off) PPE, and how to properly dispose of PPE.
- Employers must ensure workers are trained on the hazards of the cleaning chemicals used in the workplace in accordance with OSHA's Hazard Communication standard ([29 CFR 1910.1200](#) [↗](#)).
- Employers must comply with OSHA's standards on Bloodborne Pathogens ([29 CFR 1910.1030](#) [↗](#)), including proper disposal of regulated waste, and PPE ([29 CFR 1910.132](#) [↗](#)).

Additional Resources

- [OSHA COVID-19 Website](#) [↗](#)
- [CDC Home Care Guidance](#)
- [CDC COVID-19 Environmental Cleaning and Disinfection Guidance for Households](#)
- [CDC Home Care Guidance for People with Pets](#)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460
OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

Visit <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2> to find the current list of products that meet EPA's criteria for use against SARS-CoV-2, the cause of COVID-19.

List N: Products with Emerging Viral Pathogens AND Human Coronavirus claims for use against SARS-CoV-2
Date Accessed: 04/27/2020

EPA Registration Number	Active Ingredient(s)	Product Name	Company	Follow the disinfection directions and preparation for the following virus	Contact Time (in minutes)	Formulation Type	Surface Types [Hard Nonporous (HN) or Porous (P)]	Use Site	Emerging Viral Pathogen Claim?	Date Added to List N
1839-211	Quaternary ammonium	SC-AHD-64	Stepan Company	Feline calicivirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/23/2020
5185-505	Hydrogen chloride	The Works® Basic Disinfectant Toilet Bowl Cleaner	Bio-Lab Inc	Rotavirus; Poliovirus	10	Dilutable	HN	Institutional; Residential	Yes	04/23/2020
74436-1	Quaternary ammonium	EasyDECON Part 1	EFT Holdings Inc	Hepatitis A virus; Rhinovirus; Feline calicivirus;	10	RTU	HN	Healthcare; Institutional; Residential	Yes	04/23/2020
74436-2	Hydrogen Peroxide	EasyDECON Part 2	EFT Holdings Inc	Hepatitis A virus; Rhinovirus; Feline calicivirus;	10	RTU	HN	Healthcare; Institutional; Residential	Yes	04/23/2020
66570-2	Sodium dichloro-S-triazinetrione	EfferSan™	Activon Inc	Feline calicivirus	5	Solid	HN	Healthcare; Institutional; Residential	Yes	04/23/2020
87492-1	Chlorine dioxide	Electro-Biocide	Strategic Resource Optimization Inc	Rhinovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	04/23/2020
11525-30	Quaternary ammonium; Ethanol	Disinfectant Spray "G"	Aerosols Danville Inc	Rhinovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	04/23/2020
4822-614	Hydrochloric acid	Scrubbing	S.C. Johnson	Rotavirus	10	RTU	HN	Residential	Yes	04/23/2020

EPA Registration Number	Active Ingredient(s)	Product Name	Company	Follow the disinfection directions and preparation for the following virus	Contact Time (in minutes)	Formulation Type	Surface Types [Hard Nonporous (HN) or Porous (P)]	Use Site	Emerging Viral Pathogen Claim?	Date Added to List N
		Bubbles Power Stain Destroyer Non-Bleach Toilet Bowl Disinfectant	& Son Inc							
70627-79	Hydrogen peroxide	Oxivir HC Disinfectant Cleaner	Diversey Inc	Feline calicivirus; Rhinovirus; Adenovirus; Rotavirus; Poliovirus	1	RTU	HN	Healthcare; Institutional	Yes	04/23/2020
70627-80	Hydrogen peroxide	Oxivir™ HC Wipes	Diversey Inc	Feline calicivirus; Rhinovirus; Adenovirus; Rotavirus; Poliovirus	1	RTU	HN	Healthcare; Institutional	Yes	04/23/2020
4822-617	Sodium hypochlorite	Scrubbing Bubbles Bubbly Bleach Gel Toilet Bowl Disinfectant	S.C. Johnson & Son Inc	Rotavirus	10	RTU	HN	Residential	Yes	04/23/2020
6836-385	Hydrogen peroxide	DS-6640	Lonza LLC	Feline calicivirus	3	RTU	HN	Healthcare; Institutional; Residential	Yes	04/23/2020
6836-388	Hydrogen peroxide	DS6809	Lonza LLC	Feline calicivirus	3	Wipe	HN	Healthcare; Institutional; Residential	Yes	04/23/2020
91452-1	Citric acid	LEXX™ Liquid Sanitizer and Cleaner	ProNatural Brands LLC	Feline calicivirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/23/2020

EPA Registration Number	Active Ingredient(s)	Product Name	Company	Follow the disinfection directions and preparation for the following virus	Contact Time (in minutes)	Formulation Type	Surface Types [Hard Nonporous (HN) or Porous (P)]	Use Site	Emerging Viral Pathogen Claim?	Date Added to List N
		Concentrate								
1043-128	Phenolic	Vesphene IIIse Phenolic Disinfectant	Steris Corporation	Adenovirus	10	Dilutable	HN	Healthcare; Institutional	Yes	04/23/2020
88897-1	Quaternary ammonium; Ethanol; Isopropanol	Panther Disinfectant Towelette	Maxill Inc	Poliovirus	3	Wipe	HN	Healthcare; Institutional	Yes	04/23/2020
1677-255	Sodium dichloroisocyanurate	XHC-S	Ecolab Inc	Poliovirus	5	Dilutable	HN	Healthcare, Institutional	Yes	04/23/2020
68660-11	Hydrogen peroxide; Peroxyacetic acid	Proxitane® AHC	Solvay Chemicals LLC	Rhinovirus	10	Dilutable	HN	Institutional	Yes	04/23/2020
34810-31	Phenolic	Wex-cide 128	Wexford Labs Inc	Feline calicivirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/23/2020
1839-155	Quaternary ammonium	BTC 2125M 20% Solution	Stepan Company	Adenovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/23/2020
1839-245	Quaternary ammonium	SC-5:256HN	Stepan Company	Norovirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/23/2020
65402-3	Peroxyacetic acid; Hydrogen peroxide	VigorOx SP-15 Antimicrobial Agent	PeroxyChem LLC	Norovirus	5	Dilutable	HN	Institutional	Yes	04/23/2020
70271-15	Sodium hypochlorite	2% Sodium Hypochlorite Spray	KIK International, Inc.	Rhinovirus	1	RTU	HN	Healthcare; Institutional; Residential	Yes	04/23/2020
73232-1	Isopropyl alcohol; Quaternary ammonium	Alpet D2	Best Sanitizers Inc	Norovirus	5	RTU	HN	Healthcare; Institutional; Residential	Yes	04/23/2020

EPA Registration Number	Active Ingredient(s)	Product Name	Company	Follow the disinfection directions and preparation for the following virus	Contact Time (in minutes)	Formulation Type	Surface Types [Hard Nonporous (HN) or Porous (P)]	Use Site	Emerging Viral Pathogen Claim?	Date Added to List N
34810-36	Citric acid	CleanCide Wipes	Wexford Labs Inc	Rhinovirus; Feline calicivirus	5	Towelette	HN	Healthcare; Institutional; Residential	Yes	04/23/2020
1839-96	Quaternary ammonium	NP 9.0 (D & F) Detergent/ disinfectant	Stepan Company	Feline calicivirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/23/2020
87518-1	Hypochlorous acid	Hsp20	HSP USA LLC	Norovirus	1	RTU	HN	Healthcare; Institutional; Residential	Yes	04/23/2020
72372-1	Hydrogen peroxide	B-Cap™ 35 Antimicrobial Agent	PeroxyChem LLC	Use this product for sterilization as instructed in the Bioquell Hydrogen Peroxide Vapor (HPV) User's Equipment Manual	Consult user manual	Vapor (use in conjunction with VHP generator)	HN; P	Institutional	Yes	04/16/2020
777-126	Hydrogen peroxide	Angel	Reckitt Benckiser LLC	Rotavirus; Rhinovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	04/16/2020
4822-594	Quaternary ammonium	Scrubbing Bubbles® Bathroom Disinfectant Bathroom Grime Fighter	S.C. Johnson & Son Inc	Rotavirus	5	RTU	HN	Institutional; Residential	Yes	04/16/2020
89833-4	Hydrogen peroxide	D7 Part 2	Decon7 Systems LLC	Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/16/2020
1677-254	Sodium hypochlorite	XHC-E	Ecolab Inc	Poliovirus	5	RTU	HN	Healthcare; Institutional	Yes	04/16/2020

EPA Registration Number	Active Ingredient(s)	Product Name	Company	Follow the disinfection directions and preparation for the following virus	Contact Time (in minutes)	Formulation Type	Surface Types [Hard Nonporous (HN) or Porous (P)]	Use Site	Emerging Viral Pathogen Claim?	Date Added to List N
706-65	Quaternary ammonium	Claire Disinfectant Bathroom Cleaner	Claire Manufacturing Company	Adenovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	04/16/2020
70144-5	Quaternary ammonium; Ethanol	Opti-cide Max	Micro-Scientific LLC	Rotavirus	1	RTU	HN	Healthcare; Institutional; Residential	Yes	04/16/2020
3573-77	Sodium hypochlorite	CSP-3002-3	The Proctor & Gamble Company	Norovirus; Poliovirus	1	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/16/2020
3573-96	Quaternary ammonium	Malibu Concentrate	The Proctor & Gamble Company	Feline calicivirus; Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/16/2020
1839-215	Quaternary ammonium	SC-NDC-128	Stepan Company	Rotavirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/16/2020
1839-233	Quaternary ammonium	SC-5:64N	Stepan Company	Simian rotavirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/16/2020
6836-233	Quaternary ammonium	BARDAC 205M-50	Lonza LLC	Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/16/2020
70627-35	Quaternary ammonium	Envy Foaming Disinfectant Cleaner	Diversey Inc	Poliovirus	3	Dilutable	HN	Healthcare; Institutional	Yes	04/16/2020
1839-225	Quaternary ammonium	SC-RTU-TB	Stepan Company	Rhinovirus	3	RTU	HN	Healthcare; Institutional; Residential	Yes	04/16/2020
1839-212	Quaternary ammonium	SC-AHD-256	Stepan Company	Feline calicivirus; Norovirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/16/2020
5741-28	Sodium hypochlorite	Tulmult	Spartan	Feline	0.5 (30	RTU	HN	Healthcare;	Yes	04/16/2020

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			Chemical Company Inc	calicivirus; Norovirus	seconds)			Institutional; Residential		
70144-2	Quarternary ammonium; Isopropanol	Opti-Cide 3® Wipes	Micro-Scientific LLC	Rotavirus; Rhinovirus	3	Wipe	HN	Healthcare; Institutional	Yes	04/09/2020
1677-259	Dodecylbenzenesulfonic acid; Lactic acid	CW32A-RTU	Ecolab Inc	Norovirus	0.5 (30 seconds)	RTU	HN	Healthcare; Institutional; Residential	Yes	04/09/2020
1677-260	Dodecylbenzenesulfonic acid; Lactic acid	S&S Sanitizer	Ecolab Inc	Norovirus	0.5 (30 seconds)	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/09/2020
91899-2	Hydrogen peroxide	MDF-200 Part B	Span-World LLC	Feline calicivirus	10	Dilutable	HN	Healthcare; Institutional	Yes	04/09/2020
91899-1	Quarternary ammonium	MDF-200 Part A	Span-World LLC	Feline calicivirus	10	Dilutable	HN	Healthcare; Institutional	Yes	04/09/2020
34810-35	Citric acid	Cleancide	Wexford Labs Inc	Feline calicivirus	5	RTU	HN	Healthcare; Institutional	Yes	04/09/2020
9804-1	Chlorine dioxide	Oxine	Bio-Cide International Inc	Canine parvovirus	10	Dilutable	HN	Healthcare; Institutional	Yes	04/09/2020
58779-4	Hydrogen peroxide	Vaprox Hydrogen Peroxide Sterilant	Steris Corporation	Use this product for sterilization as instructed in the Vaporized Hydrogen Peroxide (VHP®) User's Equipment Manual	Consult user manual	Vapor (use in conjunction with VHP generator)	HN; P	Institutional	Yes	04/09/2020
58232-2	Sodium hypochlorite	Sodium Hypochlorite 8.25%	Hasa Inc	Rhinovirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/09/2020

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4822-593	L-Lactic Acid	Windex Disinfectant Cleaner	S.C. Johnson & Son Inc	Rhinovirus	5	RTU	HN	Institutional; Residential	Yes	04/09/2020
66251-2	Citric acid; Thymol	SBT 2 to 1 Concentrate	Melaleuca Inc	Rhinovirus, Poliovirus	10	Dilutable	HN	Residential	Yes	04/09/2020
71700-2	Chlorine dioxide; Quaternary ammonium	SNiPER	Global Environmental Restoration Inc	Canine parvovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	04/09/2020
9150-2	Chlorine dioxide	Anthium Dioxide	International Dioxide Inc	Canine parvovirus	15	Dilutable	HN	Healthcare; Institutional	Yes	04/09/2020
66171-103	Peroxyacetic acid; Hydrogen peroxide	Peraside A Peroxyacetic Acid-Based Sanitizer/ Disinfectant	Preserve International	Murine norovirus	2	Dilutable	HN	Healthcare; Institutional	Yes	04/09/2020
3573-54	Citric acid	Comet Disinfecting Bathroom Cleaner	The Proctor & Gamble Company	Feline calicivirus; Norovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	04/09/2020
39967-138	Potassium peroxymonosulfate; Sodium chloride	Rely+On Multipurpose Disinfectant Cleaner	Lanxess Corporation	Hepatitis A virus; Feline calicivirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/09/2020
1839-246	Quaternary ammonium	SC-5:128HN	Stepan Company	Rotavirus; Feline calicivirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/09/2020
1839-86	Quaternary ammonium	BTC 2125 M 10% Solution	Stepan Company	Adenovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/09/2020
1839-166	Quaternary ammonium	BTC 885 NDC-128	Stepan Company	Rotavirus	10	Dilutable	HN	Healthcare; Institutional;	Yes	04/09/2020

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8383-13	Hydrogen peroxide; Peroxyacetic acid	PeridoxRTU™	Contec Inc	Feline calicivirus	2	RTU	HN	Residential Healthcare; Institutional	Yes	04/09/2020
84683-3	Thymol	Benefect Botanical Daily Cleaner Disinfectant Spray	Cleanwell LLC	Rhinovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	04/02/2020
88897-2	Quaternary ammonium; Isopropanol; Ethanol	Panther Disinfectant	Maxill Inc	Adenovirus; Feline calicivirus	3	RTU	HN	Healthcare; Institutional	Yes	04/02/2020
42048-4	L-Lactic Acid	Sani-Cide EX3 (10X) RTU	Celeste Industries Corp	Feline calicivirus	10	RTU	HN	Institutional	Yes	04/02/2020
66171-7	Quaternary ammonium; Glutaraldehyde	Synergize	Preserve International	Feline calicivirus	10	Dilutable	HN	Institutional	Yes	04/02/2020
85837-4	Hydrogen peroxide	Proxi Home General Disinfectant Cleaner Spray	Innovasource LLC	Rhinovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	04/02/2020
498-179	Quaternary ammonium; Ethanol	Champion Sprayon Spray Disinfectant Formula 3	Chase Products Co	Rhinovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	04/02/2020
1839-236	Quaternary ammonium	SC-5:128N	Stepan Company	Rotavirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/02/2020
70385-6	Quaternary ammonium	QGC	Prorestore Products	Feline calicivirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	04/02/2020
1043-87	Phenolic	Vesphene II se	Steris Corporation	Adenovirus	10	Dilutable	HN	Healthcare; Institutional	Yes	03/26/2020

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1043-91	Phenolic	LpH®	Steris Corporation	Adenovirus	10	Dilutable	HN	Institutional	Yes	03/26/2020
1839-100	Quaternary ammonium	Veterinarian Type Disinfectant	Stepan Company	Feline calicivirus; Norovirus	10	Dilutable	HN	Residential	Yes	03/26/2020
1839-95	Quaternary ammonium	NP 4.5 (D & F) Detergent/ disinfectant	Stepan Company	Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/26/2020
4091-20	Quaternary ammonium	Phoenix 2	W.M. Barr & Company Inc	Rotavirus; Feline calicivirus; Rhinovirus	5	RTU	HN	Healthcare; Institutional; Residential	Yes	03/26/2020
44446-67	Phenolic; Ethanol	Concept Hospital Disinfectant Deodorant	Quest Specialty Corp	Adenovirus; Canine hepatitis virus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	03/26/2020
45745-11	Hydrogen peroxide	HP202	Midlab	Rotavirus; Norovirus; Rhinovirus	5	Dilutable	HN	Healthcare; Institutional	Yes	03/26/2020
56392-8	Sodium hypochlorite	Dispatch	Clorox Professional Products Company	Adenovirus	1	Towelette	HN	Healthcare; Institutional; Residential	Yes	03/26/2020
65402-9	Peroxyacetic acid; Hydrogen Peroxide	VigorOx 15/10 Antimicrobial Agent	PeroxyChem LLC	Feline calicivirus	5	Dilutable	HN	Healthcare; Institutional	Yes	03/26/2020
67619-40	Sodium hypochlorite	TNT	Clorox Professional Products Company	Murine norovirus	1	RTU	HN	Healthcare; Institutional; Residential	Yes	03/26/2020
70060-19	Sodium chlorite; Sodium	Aseptrol S10-	BASF	Feline	10	Solid	HN	Healthcare;	Yes	03/26/2020

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	dischloroisocyanurate dihydrate	Tab	Corporation	calicivirus				Institutional		
70144-4	Quaternary ammonium; Ethanol	Opti-cide Max Wipes	Micro-Scientific LLC	Rotavirus	1	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/26/2020
70271-13	Sodium hypochlorite	Pure Bright Germicidal Ultra Bleach	KIK International LLC	Adenovirus; Rotavirus; Canine parvovirus; Feline panleukopenia virus; Hepatitis A virus; Norovirus; Poliovirus; Rhinovirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/26/2020
70271-31	Sodium hypochlorite	Nova	KIK International LLC	Rhinovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/26/2020
777-131	Hypochlorous acid	Cousteau	Reckitt Benckiser	Rhinovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	03/26/2020
82972-1	Chlorine dioxide; Quaternary ammonium	Vital Oxide	Vital Solutions LLC	Adenovirus; Canine parvovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	03/26/2020
84198-1	Hydrogen peroxide	Peroxy HDOX	Earth Laboratories Inc	Norovirus	5	Dilutable	HN	Healthcare; Institutional	Yes	03/26/2020
84683-4	Thymol	Benefect Botanical Daily Cleaner Disinfectant Towelette	Cleanwell LLC	Rhinovirus	10	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/26/2020

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89833-3	Quaternary ammonium	D7 Part 1	Decon7 Systems LLC	Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/26/2020
89900-2	Quaternary ammonium	Scrubbing Bubbles Disinfectant Restroom Cleaner II	S.C. Johnson Professional	Rotavirus	5	RTU	HN	Institutional; Residential	Yes	03/26/2020
89900-3	Quaternary ammonium	Fantastik Multi-Surface Disinfectant Degreaser	S.C. Johnson Professional	Rotavirus	5	RTU	HN	Institutional; Residential	Yes	03/26/2020
91399-2	Sodium chlorite	Biotab7	Advanced Biocide Technologies Inc	Feline calicivirus; Norovirus	1	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/26/2020
92108-1	Hypochlorous acid	Excelyte Vet	PCT LTD	Norovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	03/26/2020
92987-1	Sodium chlorite; citric acid	Tristel Duo for Surfaces	Tristel Solutions LTD	Adenovirus; Feline calicivirus; Poliovirus	0.5 (30 seconds)	RTU	HN	Healthcare; Institutional	Yes	03/26/2020
93040-1	Sodium chloride	Force of Nature Activator Capsule	HCl Cleaning Products LLC	Feline calicivirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	03/26/2020
1130-15	Quaternary ammonium; Isopropanol	Weiman Germicidal Solution	Weiman Products LLC	Rotavirus	3	RTU	HN	Healthcare; Institutional; Residential	Yes	03/19/2020
1677-233	Quaternary ammonium	Multi-Purpose Disinfectant	Ecolab Inc	Feline calicivirus	10	Dilutable	HN	Healthcare; Institutional;	Yes	03/19/2020

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		Cleaner						Residential		
5813-120	Sodium hypochlorite	CRB	The Clorox Company	Canine parvovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/19/2020
675-55	Citric acid	Lysol Bathroom Cleaner	Reckitt Benckiser LLC	Poliovirus	5	RTU	HN	Healthcare; Institutional; Residential	Yes	03/19/2020
70144-1	Quaternary ammonium; Isopropanol	Opti-Cide 3	Micro-Scientific LLC	Rotavirus; Rhinovirus Type 14	2	RTU	HN	Healthcare; Institutional; Residential	Yes	03/19/2020
706-111	Quaternary ammonium	Claire Disinfectant Spray Q	Claire Manufacturing Company	Poliovirus	5	RTU	HN	Healthcare; Institutional; Residential	Yes	03/19/2020
84526-6	Hydrogen peroxide; Silver	Halomist	Halosil International Inc	Feline calicivirus; Minute virus of men	10	RTU	HN	Healthcare; Institutional	Yes	03/19/2020
85134-1	Hypochlorous acid	Envirocleanse A	Envirocleanse LLC	Norovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	03/19/2020
87518-6	Sodium hypochlorite	Sporex	HSP USA LLC	Norovirus; Canine parvovirus	1	RTU	HN	Healthcare; Institutional; Residential	Yes	03/19/2020
90150-2	Hydrogen peroxide	Binary Ionization Technology (BIT) Solution	Tomi Environmental Solutions Inc	Feline calicivirus	15	Fog; Mist	HN	Healthcare; Institutional; Residential	Yes	03/19/2020
91582-1	Hypochlorous acid	Danolyte	Danolyte Global Inc	Adenovirus; Rhinovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	03/19/2020
9480-4	Quaternary ammonium; Isopropanol	Super Sani-Cloth	Professional Disposables	Rhinovirus 39; Adenovirus	2	Wipe	HN	Healthcare; Institutional	Yes	03/19/2020

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		Germicidal Disposable Wipe	International Inc							
9480-8	Sodium hypochlorite	Sani-Cloth Bleach Germicidal Disposable Wipe	Professional Disposables International Inc	Adenovirus; Rotavirus; Canine parvovirus; Hepatitis A virus; Poliovirus Type 1; Rhinovirus Type 37; Feline calicivirus	1	Wipe	HN	Healthcare; Institutional	Yes	03/19/2020
9480-9	Quaternary ammonium	AF3 Germicidal Disposable Wipe	Professional Disposables International Inc	Rotavirus; Adenovirus	3	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/19/2020
5813-58	Quaternary ammonium	Spruce-ups	The Clorox Company	Rotavirus	0.25 (15 seconds)	Wipe	HN	Institutional; Residential	Yes	03/13/2020
1677-250	Hydrogen peroxide; Peroxyoctanoic acid; Peroxyacetic acid	Synergex	Ecolab Inc	Reovirus	5	Dilutable	HN	Institutional	Yes	03/13/2020
37549-1	Sodium hypochlorite	Micro-kill Bleach Germicidal Bleach Wipes	Medline Industries Inc	Norovirus	0.5 (30 seconds)	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
37549-2	Sodium hypochlorite	Micro-kill Bleach Solution	Medline Industries Inc	Norovirus	0.5 (30 seconds)	RTU	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
44446-23	Quaternary ammonium	Germ Away	Quest Specialty Corp	Canine parvovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	03/13/2020

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46781-12	Quaternary ammonium; Ethanol; Isopropanol	Cavicide 1	Metrex Research	Adenovirus; Rotavirus; Feline Calicivirus	3	RTU	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
46781-13	Quaternary ammonium; Ethanol; Isopropanol	Caviwipes 1	Metrex Research	Adenovirus	3	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
46781-14	Sodium hypochlorite	Caviwipes Bleach	Metrex Research	Feline calicivirus	3	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
46781-15	Sodium hypochlorite	Cavicide Bleach	Metrex Research	Poliovirus; Rhinovirus	3	RTU	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
5813-100	Sodium hypochlorite	Puma	The Clorox Company	Canine parvovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
5813-102	Sodium hypochlorite	CGB1	The Clorox Company	Canine parvovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
5813-109	Quaternary ammonium	Say Q	The Clorox Company	Rotavirus	10	RTU	HN	Institutional; Residential	Yes	03/13/2020
5813-113	Quaternary ammonium	CDW	The Clorox Company	Rotavirus	4	Wipe	HN	Institutional; Residential	Yes	03/13/2020
5813-118	Quaternary ammonium	Dash	The Clorox Company	Rotavirus	10	RTU	HN	Residential	Yes	03/13/2020
6659-3	Quaternary ammonium	Spray Nine	ITW Permatex Inc	Norovirus; Rhinovirus; Poliovirus	0.5 (30 seconds)	RTU	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
74559-10	Hydrogen peroxide	Oxy-1 Wipes	Virox Technologies Inc	Poliovirus	0.5 (30 seconds)	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/13/2020

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67619-20	Quaternary ammonium	Rex	Clorox Professional Products Company	Hepatitis A virus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
67619-26	Sodium hypochlorite	Boris	Clorox Professional Products Company	Canine parvovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
67619-35	Peracetic acid; Hydrogen peroxide	Blacksmith	Clorox Professional Products Company	Rhinovirus	1	RTU	HN	Healthcare; Institutional	Yes	03/13/2020
67619-41	Quaternary ammonium	PPD Dash	Clorox Professional Products Company	Rotavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
67619-9	Quaternary ammonium	PJW-622	Clorox Professional Products Company	Rotavirus	3	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
6836-136	Quaternary ammonium	Lonza Formulation S-18F	Lonza LLC	Feline calicivirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
6836-139	Quaternary ammonium	Lonza Formulation R-82F	Lonza LLC	Feline calicivirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
6836-277	Quaternary ammonium	BARDAC 205M-1.30	Lonza LLC	Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
6836-303	Quaternary ammonium	BARDAC 205M-5.2	Lonza LLC	Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/13/2020

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6836-346	Quaternary ammonium	Lonzagard RCS-256	Lonza LLC	Norovirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
6836-347	Quaternary ammonium	Lonzagard RCS-128	Lonza LLC	Feline calicivirus; Enterovirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
6836-348	Quaternary ammonium	Lonzagard RCS-128 PLUS	Lonza LLC	Feline calicivirus; Enterovirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
6836-362	Quaternary ammonium	Nugen MB5A-128	Lonza LLC	Norovirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
6836-363	Quaternary ammonium	Nugen MB5A-64	Lonza LLC	Norovirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
6836-366	Quaternary ammonium	Nugen MB5N-64	Lonza LLC	Norovirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
74559-1	Hydrogen peroxide	Accel TB	Virox Technologies Inc	Poliovirus; Feline Calicivirus	1	RTU	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
74559-9	Hydrogen peroxide	Oxy-1 RTU	Virox Technologies Inc	Poliovirus	0.5 (30 seconds)	RTU	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
74559-3	Hydrogen peroxide	Accel TB Wipes	Virox Technologies Inc	Poliovirus	1	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
74559-4	Hydrogen peroxide	Accel (Concentrate) Disinfectant Cleaner	Virox Technologies Inc	Poliovirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
777-114	Quaternary ammonium	Lysol®	Reckitt	Rotavirus	10	Wipe	HN	Healthcare;	Yes	03/13/2020

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		Disinfecting Wipes (All Scents)	Benckiser					Institutional; Residential		
83614-1	Quaternary ammonium	Byotrol 24	Byotrol Inc	Feline calicivirus	5	RTU	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
84150-2	Ethanol	Mitersaw	GOJO Industries Inc	Feline calicivirus	5	Wipe	HN	Institutional; Residential	Yes	03/13/2020
87742-1	Thymol	Thymox Disinfectant Spray	Laboratorie M2	Norovirus	4	RTU	HN	Healthcare; Institutional; Residential	Yes	03/13/2020
777-70	Quaternary ammonium	Lysol Brand Cling & Fresh Toilet Bowl Cleaner	Reckitt Benckiser LLC	Rotavirus	0.5 (30 seconds)	RTU	HN	Institutional; Residential	Yes	03/03/2020
1677-129	Hydrogen peroxide; Peroxyacetic acid	Oxonia Active	Ecolab Inc	Poliovirus	10	Dilutable	HN	Healthcare; Institutional	Yes	03/03/2020
1677-226	Hydrogen peroxide; Octanoic acid; Peroxyacetic acid	Virasept	Ecolab Inc	Norovirus; Rhinovirus	4	RTU	HN	Healthcare; Institutional	Yes	03/03/2020
1677-235	Sodium hypochlorite	Bleach Disinfectant Cleaner	Ecolab Inc	Murine Norovirus; Poliovirus; Rhinovirus	1	RTU	HN	Healthcare; Institutional	Yes	03/03/2020
1677-237	Hydrogen peroxide; Peroxyacetic acid	Oxycide Daily Disinfectant Cleaner	Ecolab Inc	Feline Calicivirus; Rhinovirus	3	Dilutable	HN	Healthcare; Institutional	Yes	03/03/2020
1677-238	Hydrogen peroxide	Peroxide Multi Surface Cleaner and Disinfectant	Ecolab Inc	Norovirus	2	Dilutable	HN	Healthcare; Institutional	Yes	03/03/2020
1677-249	Isopropanol	Klercide	Ecolab Inc	Rhinovirus	5	RTU	HN	Healthcare;	Yes	03/03/2020

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		70/30 IPA						Institutional		
777-83	Sodium hypochlorite	Lysol Brand Bleach Mold And Mildew Remover	Reckitt Benckiser LLC	Rhinovirus; Norovirus	0.5 (30 seconds)	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
1839-220	Quaternary ammonium	SC-RTU Disinfectant Cleaner	Stepan Company	Poliovirus	5	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
1839-248	Quaternary ammonium	Stepan Spray Disinfectant Concentrate	Stepan Company	Rhinovirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
1839-83	Quaternary ammonium	Detergent Disinfectant Pump Spray	Stepan Company	Canine Parvovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
4091-21	Quaternary ammonium	Condor 2	W.M. Barr & Company Inc	Rotavirus	5	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
4091-22	Quaternary ammonium; Citric acid	Raptor 5	W.M. Barr & Company Inc	Rhinovirus	5	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
42182-9	Quaternary ammonium; Ethanol	Firebird F130	Microban Products Company	Poliovirus; Norovirus	5	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
47371-129	Quaternary ammonium	Formulation HWS- 256	H&S Chemicals Division of Lonza LLC	Adenovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
47371-130	Quaternary ammonium	Formulation HWS-128	H&S Chemicals Division of Lonza, LLC	Adenovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
47371-131	Quaternary ammonium	HWS-64	H&S	Adenovirus	10	Dilutable	HN	Healthcare;	Yes	03/03/2020

EPA Registration Number	Active Ingredient(s)	Product Name	Company	Follow the disinfection directions and preparation for the following virus	Contact Time (in minutes)	Formulation Type	Surface Types [Hard Nonporous (HN) or Porous (P)]	Use Site	Emerging Viral Pathogen Claim?	Date Added to List N
			Chemicals Division of Lonza LLC					Institutional; Residential		
47371-192	Quaternary ammonium	Formulation HWS-32	H&S Chemicals Division of Lonza LLC	Adenovirus	10	Dilutable	HN	Institutional; Residential	Yes	03/03/2020
56392-7	Sodium hypochlorite	Clorox Healthcare® Bleach Germicidal Cleaner Spray	Clorox Professional Products Company	Canine Parvovirus; Feline Panleukopenia Virus; Hepatitis A Virus; Norovirus; Poliovirus; Rhinovirus	1	RTU	HN	Healthcare; Institutional	Yes	03/03/2020
5813-105	Sodium hypochlorite	Clorox Multi Surface Cleaner + Bleach	The Clorox Company	Rhinovirus; Canine Parvovirus; Feline Panleukopenia Virus; Norovirus; Poliovirus	1	RTU	HN	Residential	Yes	03/03/2020
5813-110	Hydrogen peroxide	Clorox Pet Solutions Advanced Disinfecting Stain & Odor Remover	The Clorox Company	Enterovirus D68; Norovirus; Rhinovirus	5	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
5813-111	Sodium hypochlorite	Clorox Disinfecting	The Clorox Company	Canine Parvovirus;	10	Dilutable	HN	Healthcare; Institutional;	Yes	03/03/2020

EPA Registration Number	Active Ingredient(s)	Product Name	Company	Follow the disinfection directions and preparation for the following virus	Contact Time (in minutes)	Formulation Type	Surface Types [Hard Nonporous (HN) or Porous (P)]	Use Site	Emerging Viral Pathogen Claim?	Date Added to List N
		Bleach2		Feline Parvovirus				Residential		
5813-114	Sodium hypochlorite	Clorox Performance Bleach1	The Clorox Company	Canine Parvovirus; Feline Parvovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
5813-115	Quaternary ammonium	Clorox Scentiva Bathroom Disinfecting Foam Cleaner	The Clorox Company	Rotavirus	5	RTU	HN	Residential	Yes	03/03/2020
5813-21	Sodium hypochlorite	Clorox Clean Up Cleaner + Bleach	The Clorox Company	Norovirus; Poliovirus	1	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
5813-40	Quaternary ammonium	Clorox Disinfecting Bathroom Cleaner	The Clorox Company	Rhinovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
5813-79	Quaternary ammonium	Clorox Disinfecting Wipes	The Clorox Company	Rotavirus	4	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
5813-89	Sodium hypochlorite	Clorox Toilet Bowl Cleaner with Bleach	The Clorox Company	Rhinovirus; Rotavirus	10	RTU	HN	Institutional; Residential	Yes	03/03/2020
63761-10	Quaternary ammonium; Sodium carbonate Peroxyhydrate	Sterilex Ultra Step	Sterilex	Feline Calicivirus; Rotavirus	10	Dilutable	HN	Healthcare; Institutional	Yes	03/03/2020
63761-8	Quaternary ammonium; Hydrogen peroxide	Sterilex Ultra Disinfectant Cleaner Solution 1	Sterilex	Feline Calicivirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
675-54	Quaternary ammonium	Lysol Brand	Reckitt	Rotavirus	5	Dilutable	HN	Healthcare;	Yes	03/03/2020

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		Heavy Duty Cleaner Disinfectant Concentrate	Benckiser LLC					Institutional		
67619-12	Sodium hypochlorite	Clorox Healthcare® Bleach Germicidal Wipes	Clorox Professional Products Company	Canine Parvovirus; Feline Parvovirus	3	Wipe	HN	Healthcare; Institutional	Yes	03/03/2020
67619-16	Sodium hypochlorite	Clorox Commercial Solutions® Toilet Bowl Cleaner with Bleach1	Clorox Professional Products Company	Rotavirus; Rhinovirus 39	10	RTU	HN	Institutional; Residential	Yes	03/03/2020
67619-17	Sodium hypochlorite	Clorox Commercial Solutions® Clorox® Clean-Up Disinfectant Cleaner with Bleach1	Clorox Professional Products Company	Norovirus	5	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
67619-21	Quaternary ammonium; Ethanol	Clorox Commercial Solutions® Clorox® Disinfecting Spray	Clorox Professional Products Company	Coxsackie Virus; Echovirus; Feline Calicivirus; Hepatitis A Virus; Poliovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
67619-24	Hydrogen Peroxide	Clorox Commercial	Clorox Professional	Norovirus; Rhinovirus;	1	RTU	HN	Healthcare; Institutional;	Yes	03/03/2020

EPA Registration Number	Active Ingredient(s)	Product Name	Company	Follow the disinfection directions and preparation for the following virus	Contact Time (in minutes)	Formulation Type	Surface Types [Hard Nonporous (HN) or Porous (P)]	Use Site	Emerging Viral Pathogen Claim?	Date Added to List N
		Solutions® Hydrogen Peroxide Cleaner Disinfectant	Products Company	Rotavirus				Residential		
67619-25	Hydrogen peroxide	Clorox Commercial Solutions® Hydrogen Peroxide Cleaner Disinfectant Wipes	Clorox Professional Products Company	Norovirus	2	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
67619-29	Ethanol	Saginaw	Clorox Professional Products Company	Coxsackievirus; Hepatitis A Virus; Rhinovirus; Rotavirus	5	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
67619-30	Sodium hypochlorite	GNR	Clorox Professional Products Company	Coxsackievirus; Feline Calicivirus; Feline Panleukopenia Virus; Minute virus of mice; Poliovirus; Rhinovirus Type 37	1	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
67619-31	Quaternary ammonium	Clorox Commercial Solutions® Clorox® Disinfecting Wipes	Clorox Professional Products Company	Rotavirus	4	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/03/2020

EPA Registration Number	Active Ingredient(s)	Product Name	Company	Follow the disinfection directions and preparation for the following virus	Contact Time (in minutes)	Formulation Type	Surface Types [Hard Nonporous (HN) or Porous (P)]	Use Site	Emerging Viral Pathogen Claim?	Date Added to List N
67619-32	Sodium hypochlorite	CloroxPro™ Clorox® Germicidal Bleach	Clorox Professional Products Company	Canine Parvovirus; Coxsackievirus B3 Virus; Enterovirus D68; Norovirus; Feline Parvovirus; Hepatitis A Virus; Murine Norovirus; Poliovirus; Rhinovirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
67619-33	Hydrogen peroxide	Clorox Commercial Solutions® Clorox® Disinfecting Biostain & Odor Remover	Clorox Professional Products Company	Enterovirus, Norovirus; Rhinovirus Type 37	5	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
67619-37	Quaternary ammonium	Clorox Healthcare® VersaSure® Wipes	Clorox Professional Products Company	Norovirus	5	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
67619-38	Quaternary ammonium	CloroxPro™ Clorox Total 360® Disinfecting Cleaner1	Clorox Professional Products Company	Coxsackievirus Type B3	5	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
6836-140	Quaternary ammonium	Lonza Formulation S- 21F	Lonza LLC	Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020

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6836-152	Quaternary ammonium	Lonza Formulation DC-103	Lonza LLC	Norovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
6836-266	Quaternary ammonium	BARDAC 205M-10	Lonza LLC	Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
6836-278	Quaternary ammonium	BARDAC 205M- 14.08	Lonza LLC	Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
6836-289	Quaternary ammonium	BARDAC 205M RTU	Lonza LLC	Norovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
6836-302	Quaternary ammonium	BARDAC 205M-2.6	Lonza LLC	Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
6836-305	Quaternary ammonium	BARDAC 205M-23	Lonza LLC	Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
6836-313	Quaternary ammonium	Lonza Disinfectant Wipes	Lonza LLC	Rotavirus	10	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
6836-340	Quaternary ammonium	Lonza Disinfectant Wipes Plus 2	Lonza LLC	Norovirus	10	Wipe	HN	Healthcare; Institutional	Yes	03/03/2020
6836-349	Quaternary ammonium	Lonzagard RCS- 256 Plus	Lonza LLC	Enterovirus D68; Norovirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
6836-361	Quaternary ammonium	Nugen MB5A-256	Lonza LLC	Norovirus	5	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
6836-364	Quaternary ammonium	Nugen MB5N-256	Lonza LLC	Norovirus	5	Dilutable	HN	Healthcare; Institutional;	Yes	03/03/2020

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6836-365	Quaternary ammonium	Nugen MB5N-128	Lonza LLC	Norovirus	5	Dilutable	HN	Residential Healthcare; Institutional; Residential	Yes	03/03/2020
6836-70	Quaternary ammonium	BARDAC 205M-7.5	Lonza LLC	Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
6836-75	Quaternary ammonium	Lonza Formulation S-21	Lonza LLC	Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
6836-77	Quaternary ammonium	Lonza Formulation S-18	Lonza LLC	Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
6836-78	Quaternary ammonium	Lonza Formulation R-82	Lonza LLC	Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
70627-24	Quaternary ammonium	Virex™ II / 256	Diversey Inc	Adenovirus Type 2	10	Dilutable	HN	Healthcare; Institutional	Yes	03/03/2020
70627-56	Hydrogen peroxide	Oxivir Tb	Diversey Inc	Norovirus; Rhinovirus; Poliovirus Type 1	1	RTU	HN	Healthcare; Institutional	Yes	03/03/2020
70627-58	Hydrogen peroxide	Oxy-Team™ Disinfectant Cleaner	Diversey Inc	Canine Parvovirus; Feline Picornavirus	5	Dilutable	HN	Healthcare; Institutional	Yes	03/03/2020
70627-60	Hydrogen peroxide	Oxivir™ Wipes	Diversey Inc	Norovirus; Poliovirus Type 1; Rhinovirus Type 14	1	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
70627-72	Sodium hypochlorite	Avert Sporicidal	Diversey Inc	Canine Parvovirus;	1	Dilutable	HN	Healthcare; Institutional	Yes	03/03/2020

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		Disinfectant Cleaner		Norovirus; Hepatitis A; Poliovirus Type 1						
70627-74	Hydrogen peroxide	Oxivir 1	Diversey Inc	Canine Parvovirus; Enterovirus Type D68	1	RTU	HN	Healthcare; Institutional	Yes	03/03/2020
70627-77	Hydrogen peroxide	Oxivir 1 Wipes	Diversey Inc	Enterovirus Type D68	1	Wipe	HN	Healthcare; Institutional	Yes	03/03/2020
71847-6	Sodium dichloro-S-triazinetrione	Klorsept	Medentech LTD	Hepatitis A virus; Coxsackievirus B3	1	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
71847-7	Sodium dichloro-S-triazinetrione	Klorkleen	Medentech LTD	Hepatitis A virus; Coxsackievirus B3	1	Dilutable	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
777-127	Quaternary ammonium; Ethanol	Lysol® Disinfectant Max Cover Mist	Reckitt Benckiser LLC	Norovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
777-132	Hydrochloric acid	Lysol Brand Power Plus Toilet Bowl Cleaner	Reckitt Benckiser LLC	Poliovirus Type 1	10	RTU	HN	Healthcare; Residential	Yes	03/03/2020
1677-251	Hydrogen peroxide	Peroxide Disinfectant And Glass Cleaner Rtu	Ecolab Inc	Norovirus	0.75 (45 seconds)	RTU	HN	Healthcare; Institutional	Yes	03/03/2020
777-81	Hydrochloric acid	Lysol Brand Lime & Rust	Reckitt Benckiser LLC	Poliovirus Type 1; Hepatitis A	10	RTU	HN	Healthcare; Institutional;	Yes	03/03/2020

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		Toilet Bowl Cleaner		virus				Residential		
777-89	Quaternary ammonium	Lysol Brand Clean & Fresh Multi-surface Cleaner	Reckitt Benckiser LLC	Rotavirus WA	3	Dilutable	HN	Institutional; Residential	Yes	03/03/2020
777-99	Quaternary ammonium; Ethanol	Lysol® Disinfectant Spray	Reckitt Benckiser LLC	Norovirus	10	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
84150-1	Ethanol	PURELL Professional Surface Disinfectant Wipes	GOJO Industries Inc	Norovirus	5	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
84368-1	Ethanol	Urthpro	Urthtech LLC	Hepatitis A virus	1	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
88494-3	Quaternary ammonium; Ethanol	Peak Disinfectant	North American Infection Control Ltd	Poliovirus Type 1; Rhinovirus	1	RTU	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
88494-4	Quaternary ammonium; Ethanol	Peak Disinfectant Wipes	North American Infection Control Ltd	Poliovirus Type 1; Rhinovirus	1	Wipe	HN	Healthcare; Institutional; Residential	Yes	03/03/2020
9480-10	Quaternary ammonium; Ethanol; Isopropanol	Sani-Prime Germicidal Spray	Professional Disposables International Inc	Feline Calicivirus	3	RTU	HN	Healthcare; Institutional	Yes	03/03/2020
9480-12	Quaternary ammonium; Ethanol; Isopropanol	Sani-Cloth Prime Germicidal	Professional Disposables International	Feline Calicivirus	3	Wipe	HN	Healthcare; Institutional	Yes	03/03/2020

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		Disposable Wipe	Inc							
9480-14	Hydrogen Peroxide	Sani-HyPerCide Germicidal Spray	Professional Disposables International Inc	Norovirus	1	RTU	HN	Healthcare; Institutional	Yes	03/03/2020
91176-2	1,2-Hexanediol	PELS 422	The Gilla Company LLC	Human coronavirus	10	RTU	HN	Healthcare; Institutional	No	04/23/2020
1839-235	Quaternary ammonium	SC-5:256N	Stepan Company	Rotavirus	5	Dilutable	HN	Healthcare; Institutional; Residential	No	04/23/2020
1839-244	Quaternary ammonium	SC -5:64HN	Stepan Company	Feline calicivirus	5	Dilutable	HN	Healthcare; Institutional; Residential	No	04/23/2020
39967-137	Potassium peroxymonosulfate; Sodium chloride	Virkon S	Lanxess Corporation	Feline calicivirus	10	Dilutable	HN	Institutional	No	04/02/2020
954-11	Quaternary ammonium	Barbicide	King Research Inc	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional	No	04/02/2020
11346-3	Sodium hypochlorite	Clorox HW	The Clorox Company	Feline calicivirus; Norovirus	1	Towelette	HN	Healthcare; Residential	No	03/26/2020
11346-6	Sodium hypochlorite	Clorox HS	The Clorox Company	Feline calicivirus; Norovirus	1	RTU	HN	Healthcare; Residential	No	03/26/2020
1677-21	Quaternary ammonium	Mikro-Quat	Ecolab Inc	Feline calicivirus; Norovirus	10	Dilutable	HN	Healthcare	No	03/26/2020
1677-216	Sodium chlorite	Exspor Base Concentration	Ecolab Inc	Feline calicivirus; Norovirus	5	Dilutable	HN	Healthcare; Institutional	No	03/26/2020

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1839-174	Quaternary ammonium	Stepan Towelette	Stepan Company	Feline calicivirus; Norovirus	10	Towelette	HN	Healthcare; Institutional; Residential	No	03/26/2020
1839-80	Quaternary ammonium	NP 12.5 Detergent/ Disinfectant	Stepan Company	Adenovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/26/2020
1839-97	Quaternary ammonium	NP 12.5 (D&F) Detergent/ Disinfectant	Stepan Company	Adenovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/26/2020
34810-21	Phenolic	Ready To Use Wex-Cide	Wexford Labs Inc	Rhinovirus	10	RTU	HN	Healthcare; Institutional; Residential	No	03/26/2020
34810-25	Thymol	Ready to Use Thymol	Wexford Labs Inc	Feline calicivirus; Norovirus	10	RTU	HN	Healthcare; Institutional; Residential	No	03/26/2020
3862-179	Phenolic	Opti-Phene	ABC Compounding Co Inc	Human adenovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/26/2020
3862-181	Quaternary ammonium	Foaming Disinfectant Cleaner	ABC Compounding Co Inc	Poliovirus	10	RTU	HN	Healthcare; Institutional; Residential	No	03/26/2020
61178-2	Quaternary ammonium	Public Places	Microgen Inc	Feline calicivirus	10	RTU	HN	Healthcare; Institutional; Residential	No	03/26/2020
63761-5	Quaternary ammonium; Sodium carbonate peroxyhydrate	Sterilex Ultra Powder	Sterilex	Feline calicivirus; Norovirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/26/2020
64240-44	Sodium hypochlorite	Soft Scrub with Bleach	Combat Insect Control Systems	Rhinovirus	3	RTU	HN	Healthcare; Institutional; Residential	No	03/26/2020
64240-65	Lactic acid	WC Complete	Combat Insect Control	Rhinovirus	0.5 (30 seconds)	RTU	HN	Healthcare; Institutional;	No	03/26/2020

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			Systems					Residential		
675-30	Quaternary ammonium	Roccal II 10%	Reckitt Benckiser	Adenovirus	10	Dilutable	HN	Healthcare; Institutional	No	03/26/2020
6836-245	Quaternary ammonium	CSP-46	Lonza LLC	Feline calicivirus; Norovirus	10	RTU	HN	Healthcare; Institutional; Residential	No	03/26/2020
6836-333	Quaternary ammonium	MMR-4U	Lonza LLC	Feline calicivirus; Norovirus	10	RTU	HN	Healthcare; Institutional; Residential	No	03/26/2020
6836-379	Quaternary ammonium	Nugen NR Disinfectant Wipes	Lonza LLC	Feline calicivirus; Norovirus	5	Towelette	HN	Healthcare; Institutional; Residential	No	03/26/2020
70271-24	Sodium hypochlorite	Tecumseh B	KIK International LLC	Feline calicivirus; Norovirus	5	Dilutable	HN	Healthcare; Institutional; Residential	No	03/26/2020
70590-1	Sodium hypochlorite	Hype-Wipe	Current Technologies Inc	Feline calicivirus; Norovirus	1	Towelette	HN	Healthcare; Institutional	No	03/26/2020
70627-33	Quaternary ammonium	Envy Liquid Disinfectant Cleaner	Diversey, Inc.	Canine parvovirus	5	RTU	HN	Healthcare; Institutional	No	03/26/2020
71847-2	Sodium dichloroisocyanurate	Klor-Kleen	Medentech LTD	Feline calicivirus; Norovirus	10	Dilutable	HN	Healthcare; Institutional	No	03/26/2020
777-102	Sodium hypochlorite	Lysol Brand Toilet Bowl Cleaner with Bleach	Reckitt Benckiser LLC	Rhinovirus	5	RTU	HN	Healthcare; Institutional; Residential	No	03/26/2020
777-104	Hypochloric acid	Vanity GP	Reckitt Benckiser LLC	Poliovirus	10	RTU	HN	Healthcare; Institutional; Residential	No	03/26/2020

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777-71	Quaternary ammonium	Lysol Brand Foaming Disinfectant Basin Tub & Tile Cleaner II	Reckitt Benckiser LLC	Feline calicivirus; Norovirus	10	RTU	HN	Healthcare; Institutional; Residential	No	03/26/2020
84526-1	Hydrogen peroxide; Silver	HaloSpray	Halosil International Inc	Feline calicivirus; Norovirus	10	RTU	HN	Healthcare; Institutional; Residential	No	03/26/2020
88089-2	Hydrogen peroxide; Peroxyacetic acid	Peridox	BioMed Protect LLC	Feline calicivirus; Norovirus	2	Dilutable	HN	Healthcare; Institutional; Residential	No	03/26/2020
88089-4	Hydrogen peroxide; Peroxyacetic acid	PeridoxRTU	BioMed Protect LLC	Canine parvovirus	3	RTU	HN	Healthcare; Institutional; Residential	No	03/26/2020
88494-2	Ethyl alcohol; Quaternary Ammonium	Wedge Disinfectant Wipes	North American Infection Control Ltd	Poliovirus	1	RTU	HN	Healthcare; Institutional; Residential	No	03/26/2020
9480-11	Quaternary ammonium	BackSpray RTU	Professional Disposables International Inc	Feline calicivirus; Norovirus	5	RTU	HN	Healthcare; Institutional; Residential	No	03/26/2020
10324-59	Quaternary ammonium	Maquat 64	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/19/2020
777-128	Quaternary ammonium	Lysol® Laundry Sanitizer	Reckitt Benckiser	Human coronavirus	5	Dilutable (laundry pre-soak only)	P (laundry presoak only)	Residential	No	03/19/2020
10324-105	Quaternary ammonium	Maquat 128 PD	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-108	Quaternary ammonium	Maquat 256-	Mason	Human	10	Dilutable	HN	Healthcare;	No	03/13/2020

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		MN	Chemical Company	coronavirus				Institutional; Residential		
10324-112	Quaternary ammonium	Maquat 128-MN	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-113	Quaternary ammonium	Maquat 64-MN	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-114	Quaternary ammonium	Maquat 32-MN	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-115	Quaternary ammonium	Maquat 750-M	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-117	Quaternary ammonium	Maquat 710-M	Mason Chemical Company	Human coronavirus	10	Dilutable	HN; P (laundry presoak only)	Healthcare; Institutional; Residential	No	03/13/2020
10324-140	Quaternary ammonium	Maquat MQ2525M-CPV	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-141	Quaternary ammonium	Maquat 256-NHQ	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-142	Quaternary ammonium	Maquat MQ2525M-14	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-154	Quaternary ammonium	Maquat 64-NHQ	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-155	Quaternary ammonium	Maquat 128-NHQ	Mason Chemical	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional;	No	03/13/2020

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			Company					Residential		
10324-156	Quaternary ammonium	Maquat 512-NHQ	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-157	Quaternary ammonium	Maquat 32-NHQ	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-164	Quaternary ammonium	Maquat 256 PD	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-166	Quaternary ammonium	Maquat 32	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-167	Quaternary ammonium	Maquat 32 PD	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-177	Quaternary ammonium	Maquat 705-M	Mason Chemical Company	Human coronavirus	10	Dilutable	HN; P (laundry presoak only)	Healthcare; Institutional; Residential	No	03/13/2020
10324-194	Quaternary ammonium	Maquat 2420-10	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-198	Quaternary ammonium	Maquat 702.5-M	Mason Chemical Company	Human coronavirus	10	Dilutable	HN; P (laundry presoak only)	Healthcare; Institutional; Residential	No	03/13/2020
10324-214	Hydrogen peroxide; Peroxyacetic acid	Maguard 5626	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-230	Hydrogen peroxide; Peroxyacetic acid	Maguard 1522	Mason Chemical	Human coronavirus	1	Dilutable	HN	Healthcare; Institutional;	No	03/13/2020

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			Company					Residential		
10324-57	Quaternary ammonium	Maquat 42	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-58	Quaternary ammonium	Maquat 128	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-63	Quaternary ammonium	Maquat 10	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-71	Quaternary ammonium	Maquat 280	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-72	Quaternary ammonium	Maquat 615-HD	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-80	Quaternary ammonium	Maquat 5.5-M	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-81	Quaternary ammonium	Maquat 7.5-M	Mason Chemical Company	Human coronavirus	10	Dilutable	HN; P (laundry presoak only)	Healthcare; Institutional; Residential	No	03/13/2020
10324-85	Quaternary ammonium	Maquat 86-M	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-93	Quaternary ammonium	Maquat 64-PD	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-94	Quaternary ammonium	Maquat 20-M	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020

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10324-96	Quaternary ammonium	Maquat 50-DS	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10324-99	Quaternary ammonium	Maquat 10-PD	Mason Chemical Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
10492-4	Quaternary ammonium; Isopropanol	Discide Ultra Disinfecting Towelettes	Palmero Healthcare LLC	Human coronavirus	0.5 (30 seconds)	Wipe	HN	Healthcare; Institutional; Residential	No	03/13/2020
10492-5	Quaternary ammonium; Isopropanol	Discide Ultra Disinfecting Spray	Palmero Healthcare LLC	Human coronavirus	0.5 (30 seconds)	RTU	HN	Healthcare; Institutional; Residential	No	03/13/2020
11346-4	Quaternary ammonium	Clorox QS	The Clorox Company	Human coronavirus	2	RTU	HN	Healthcare; Residential	No	03/13/2020
1672-65	Sodium hypochlorite	Austin A-1 Ultra Disinfecting Bleach	James Austin Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
1672-67	Sodium hypochlorite	Austin's A-1 Concentrated Bleach 8.25%	James Austin Company	Human coronavirus	5	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
1677-204	Octanoic acid	65 Disinfecting Heavy Duty Acid Bathroom Cleaner	Ecolab Inc	Human coronavirus	2	Dilutable	HN	Healthcare; Institutional	No	03/13/2020
1677-241	Sodium hypochlorite	Hydris	Ecolab Inc	Human coronavirus	5	RTU	HN	Healthcare; Institutional	No	03/13/2020
1677-256	Quaternary ammonium	FSC 35K	Ecolab Inc	Human coronavirus	5	Dilutable	HN	Healthcare; Institutional	No	03/13/2020
1839-167	Quaternary ammonium	BTC 885	Stepan	Human	10	Dilutable	HN	Healthcare;	No	03/13/2020

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		Neutral Disinfectant Cleaner-256	Company	coronavirus				Institutional; Residential		
1839-168	Quaternary ammonium	BTC 885 NDC-32	Stepan Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
1839-169	Quaternary ammonium	BTC 885 Neutral Disinfectant Cleaner-64	Stepan Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
1839-176	Quaternary ammonium	Liquid-pak Neutral Disinfectant Cleaner	Stepan Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
1839-190	Quaternary ammonium	Stepan Disinfectant Wipe	Stepan Company	Human coronavirus	10	Wipe	HN	Healthcare; Institutional; Residential	No	03/13/2020
1839-213	Quaternary ammonium	SC-AHD-128	Stepan Company	Human coronavirus	5	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
1839-214	Quaternary ammonium	SC-NDC-256	Stepan Company	Human coronavirus	5	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
1839-78	Quaternary ammonium	NP 3.2 Detergent/ disinfectant	Stepan Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
1839-79	Quaternary ammonium	NP 4.5 Detergent/ disinfectant	Stepan Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
1839-81	Quaternary ammonium	NP 9.0 Detergent/ disinfectant	Stepan Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020

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1839-94	Quaternary ammonium	NP 3.2 (D & F) Detergent/ disinfectant	Stepan Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
3862-191	Quaternary ammonium	Assure	ABC Compounding Co Inc	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
4091-23	Sodium hypochlorite; Sodium carbonate	Mold Armor Formula 400	W.M. Barr & Company Inc	Human coronavirus	0.5 (30 seconds)	RTU	HN	Institutional; Residential	No	03/13/2020
42964-17	Quaternary ammonium; Ethanol	Asepticare	Airkem professional products	Human coronavirus	2	RTU	HN	Healthcare; Institutional; Residential	No	03/13/2020
46781-6	Quaternary ammonium; Isopropanol	Cavicide	Metrex Research	Human coronavirus	2	RTU	HN	Healthcare; Institutional; Residential	No	03/13/2020
4822-548	Triethylene glycol; Quaternary ammonium	Combo	S.C. Johnson & Son Inc	Human coronavirus	5	Pressurized liquid	HN	Residential	No	03/13/2020
4822-606	L-Lactic Acid	Fangio	S.C. Johnson & Son Inc	Human coronavirus	10	RTU	HN	Institutional; Residential	No	03/13/2020
4822-607	Quaternary ammonium	Lauda	S.C. Johnson & Son Inc	Human coronavirus	5	RTU	HN	Institutional; Residential	No	03/13/2020
4822-608	L-Lactic acid	Gurney	S.C. Johnson & Son Inc	Human coronavirus	5	RTU	HN	Institutional; Residential	No	03/13/2020
4822-609	Quaternary ammonium	Stewart	S.C. Johnson & Son Inc	Human coronavirus	3	RTU	HN	Institutional; Residential	No	03/13/2020
4822-613	Quaternary ammonium	Gertrude	S.C. Johnson & Son Inc	Human coronavirus	5	RTU	HN	Residential	No	03/13/2020
54289-4	Peroxyacetic acid	Peraclean 15 (Peroxyacetic Acid Solution)	Evonik Corporation	Human coronavirus	1	Dilutable	HN	Healthcare; Institutional	No	03/13/2020
56392-10	Sodium hypochlorite	Caltech Swat 200 9B	Clorox Professional	Human coronavirus	2	RTU	HN	Healthcare; Institutional	No	03/13/2020

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			Products Company							
5813-103	Sodium hypochlorite	Cgb3	The Clorox Company	Human coronavirus	5	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
5813-104	Sodium hypochlorite	Cgb4	The Clorox Company	Human coronavirus	5	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
5813-106	Sodium hypochlorite	Axl	The Clorox Company	Human coronavirus	1	RTU	HN	Residential	No	03/13/2020
5813-50	Sodium hypochlorite	Ultra Clorox Brand Regular Bleach	The Clorox Company	Human coronavirus	5	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
5813-73	Quaternary ammonium	Clorox Everest	The Clorox Company	Human coronavirus	0.5 (30 seconds)	RTU	HN	Institutional; Residential	No	03/13/2020
5813-86	Glycolic acid	CBW	The Clorox Company	Human coronavirus	10	Impregnated materials	HN	Residential	No	03/13/2020
5813-93	Glycolic acid	Show	The Clorox Company	Human coronavirus	10	Impregnated materials	HN	Residential	No	03/13/2020
5813-98	Sodium hypochlorite	Lite	The Clorox Company	Human coronavirus	1	RTU	HN	Institutional; Residential	No	03/13/2020
5813-99	Sodium hypochlorite	Wave	The Clorox Company	Human coronavirus	1	Wipe	HN	Institutional; Residential	No	03/13/2020
61178-1	Quaternary ammonium	D-125	Microgen Inc	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
61178-5	Quaternary ammonium	CCX-151	Microgen Inc	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
6198-4	Quaternary ammonium	Q. A. Concentrated	National Chemicals Inc	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional;	No	03/13/2020

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		Solution						Residential		
62472-2	Quaternary ammonium	Kennelsol HC	Alpha Tech Pet Inc.	Human coronavirus	10	Dilutable	HN	Institutional; Residential	No	03/13/2020
67619-10	Quaternary ammonium	CPPC Everest	Clorox Professional Products Company	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
67619-11	Sodium hypochlorite	CPPC Shower	Clorox Professional Products Company	Human coronavirus	1	RTU	HN	Healthcare; Institutional; Residential	No	03/13/2020
67619-13	Sodium hypochlorite	CPPC Storm	Clorox Professional Products Company	Human coronavirus	1	RTU	HN	Healthcare; Institutional; Residential	No	03/13/2020
67619-27	Sodium hypochlorite	Buster	Clorox Professional Products Company	Human coronavirus	5	RTU	HN	Healthcare; Institutional; Residential	No	03/13/2020
67619-28	Sodium hypochlorite	Milo	Clorox Professional Products Company	Human coronavirus	5	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
67619-8	Sodium hypochlorite	CPPC Ultra Bleach 2	Clorox Professional Products Company	Human coronavirus	5	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
6836-336	Quaternary ammonium	Lonza Disinfectant Wipes Plus	Lonza LLC	Human coronavirus	4	Wipe	HN	Healthcare; Institutional; Residential	No	03/13/2020
6836-372	Quaternary ammonium	Nugen 2m Disinfectant	Lonza LLC	Human coronavirus	2	Wipe	HN	Healthcare; Institutional;	No	03/13/2020

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		Wipes						Residential		
6836-381	Quaternary ammonium	Lonzagard R-82G	Lonza LLC	Human coronavirus	1	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
6836-382	Quaternary ammonium	Nugen Low Streak Disinfectant Wipes	Lonza LLC	Human coronavirus	4	Wipe	HN	Healthcare; Institutional; Residential	No	03/13/2020
70590-2	Sodium hypochlorite	Bleach-rite Disinfecting Spray With Bleach	Current Technologies Inc	Human coronavirus	1	RTU	HN	Healthcare; Institutional	No	03/13/2020
70627-15	Quaternary ammonium	Warrior	Diversey Inc	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional	No	03/13/2020
70627-2	Quaternary ammonium	Disinfectant D.C. 100	Diversey Inc	Human coronavirus	2	RTU	HN	Healthcare; Institutional	No	03/13/2020
70627-23	Quaternary ammonium	Virex II/ 64	Diversey Inc	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional	No	03/13/2020
70627-6	Phenolic	Phenolic Disinfectant HG	Diversey Inc	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional	No	03/13/2020
70627-62	Hydrogen peroxide	Phato 1:64 Disinfectant Cleaner	Diversey Inc	Human coronavirus	5	Dilutable	HN	Healthcare; Institutional	No	03/13/2020
70627-63	Quaternary ammonium	512 Sanitizer	Diversey Inc	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional	No	03/13/2020
70627-75	Sodium hypochlorite	Avert Sporocidal Disinfectant Cleaner Wipes	Diversey Inc	Human coronavirus	1	Wipe	HN	Healthcare; Institutional	No	03/13/2020

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70627-78	Hydrogen peroxide	Suretouch	Diversey Inc	Human coronavirus	5	RTU	HN	Healthcare; Institutional	No	03/13/2020
72977-3	Silver ion; Citric acid	Axen(R) 30	ETI H2O Inc	Human coronavirus	3	RTU	HN	Healthcare; Institutional; Residential	No	03/13/2020
72977-5	Silver ion; Citric acid	Sdc3a	ETI H2O Inc	Human coronavirus	1	RTU	HN	Healthcare; Institutional; Residential	No	03/13/2020
74559-6	Hydrogen peroxide	Oxy-res (Concentrate)	Virox Technologies Inc	Human coronavirus	5	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
74559-8	Hydrogen peroxide	Accel 5 RTU	Virox Technologies Inc	Human coronavirus	5	RTU	HN	Healthcare; Institutional; Residential	No	03/13/2020
777-136	Ethanol	Lysol Neutra Air® 2 in 1	Reckitt Benckiser	Human coronavirus	0.5 (30 seconds)	RTU	HN	Healthcare; Institutional; Residential	No	03/13/2020
74986-4	Sodium chlorite	Selectocide 2L500	Selective Micro Technologies LLC	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional	No	03/13/2020
74986-5	Sodium chlorite	Selectocide 5g	Selective Micro Technologies LLC	Human coronavirus	10	Solid	HN	Healthcare; Institutional	No	03/13/2020
777-130	Quaternary ammonium	Caterpillar	Reckitt Benckiser	Human coronavirus	2.5 (2 minutes & 30 seconds)	Wipe	HN	Healthcare; Institutional; Residential	No	03/13/2020
8383-14	Hydrogen peroxide; Peroxyacetic acid	PeridoxRTU (Brand) One-step	Contec Inc	Human coronavirus	0.5 (30 seconds)	Wipe	HN	Healthcare; Institutional	No	03/13/2020

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		Germicidal Wipes								
777-66	Quaternary ammonium	Lysol® Brand All Purpose Cleaner	Reckitt Benckiser	Human coronavirus	2	RTU	HN	Healthcare; Institutional; Residential	No	03/13/2020
777-82	Quaternary ammonium	Lysol Brand Deodorizing Disinfectant Cleaner	Reckitt Benckiser	Human coronavirus	10	Dilutable	HN	Institutional; Residential	No	03/13/2020
777-91	Quaternary ammonium	Lysol® Kitchen Pro Antibacterial Cleaner	Reckitt Benckiser	Human coronavirus	2	RTU	HN	Healthcare; Institutional; Residential	No	03/13/2020
8383-12	Hydrogen peroxide; Peroxyacetic acid	Peridox	Contec Inc	Human coronavirus	2	Dilutable	HN	Healthcare; Institutional	No	03/13/2020
8383-3	Phenolic	Sporicidin (Brand) Disinfectant Solution (Spray)	Contec Inc	Human coronavirus	5	RTU	HN	Healthcare; Institutional; Residential	No	03/13/2020
8383-7	Phenolic	Sporicidin (Brand) Disinfectant Towelettes	Contec Inc	Human coronavirus	5	Wipe	HN	Healthcare; Institutional; Residential	No	03/13/2020
85343-1	Quaternary ammonium	Teccare Control	Talley Environmental Care Limited	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
87508-3	Sodium chlorite	Performacide	Odorstart LLC	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional	No	03/13/2020
88494-1	Quaternary ammonium; Ethanol	Wedge Disinfectant	North American Infection	Human coronavirus	1	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020

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			Control LTD							
89896-2	Hypochlorous acid	Cleansmart	Simple Science Limited	Human coronavirus	10	RTU	HN	Healthcare; Institutional; Residential	No	03/13/2020
89900-1	Hydrogen peroxide	Nathan 2	S.C. Johnson Professional	Human coronavirus	5	RTU	HN	Healthcare; Institutional; Residential	No	03/13/2020
90287-1	Quaternary ammonium	Maquat 25.6-PDX	VI-JON INC	Human coronavirus	10	Dilutable	HN	Healthcare; Institutional; Residential	No	03/13/2020
9402-14	Hydrogen peroxide; Ammonium carbonate; Ammonium bicarbonate	Hitman Spray	Kimberly-Clark Global Sales LLC	Human coronavirus	5	RTU	HN	Institutional; Residential	No	03/13/2020
9402-15	Hydrogen peroxide; Ammonium carbonate; Ammonium bicarbonate	Victor Spray	Kimberly-Clark Global Sales LLC	Human coronavirus	5	Pressurized liquid	HN	Healthcare; Institutional; Residential	No	03/13/2020
9402-17	Hydrogen peroxide; Ammonium carbonate; Ammonium bicarbonate	Hitman Wipe	Kimberly-Clark Global Sales LLC	Human coronavirus	6	Wipe	HN	Institutional; Residential	No	03/13/2020
9480-5	Quaternary ammonium	Sani-cloth Germicidal Disposable Cloth	Professional Disposables International Inc	Human coronavirus	3	Wipe	HN	Healthcare; Institutional; Residential	No	03/13/2020